State of Utah

GARY R. HERBERT
Governor

GREGORY S. BELL
Lt. Governor

Department of Administrative Services
KIMBERLY K. HOOD
Executive Director

Division of Facilities Construction and Management
DAVID G. BUXTON
Director

Addendum No. 3

Date:	April 8, 2013
To:	Contractors
From:	Matthias Mueller – Program Director
Reference:	Bachelor Enlisted Quarters Facility Utah National Guard – Camp Williams, Utah DFCM Project No. 10281480
Subject:	**Addendum No. 3**

Pages	Addendum Cover Sheet	1	pages
	Architect's Addendum 3	87	pages
	Total	88	pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

3.1 **SCHEDULE CHANGES:** There are no Project Schedule changes.

3.2 **GENERAL ITEMS**: See attached Architect's Addendum 3 dated April 5, 2013.

ADDENDUM THREE

BEQ FACILITY
CAMP WILLIAMS, UTAH
FY13-PN 490076

STATE OF UTAH
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
DFCM PROJECT NO. 10281480
APRIL 5**, 2013**

CODE OFFICIAL STAMP

EFT ARCHITECTS INC.

ADDENDUM THREE

APRIL 5, 2013

DFCM PROJECT No. 10281480 FY 13 PROJECT No. 490076

EFT ARCHITECTS PROJECT No. 11007

BACHELORS ENLISTED QUARTERS FACILITY

UTAH NATIONAL GUARD CAMP WILLIAMS

17800 SOUTH CAMP WILLIAMS ROAD

RIVERTON, UTAH 84065

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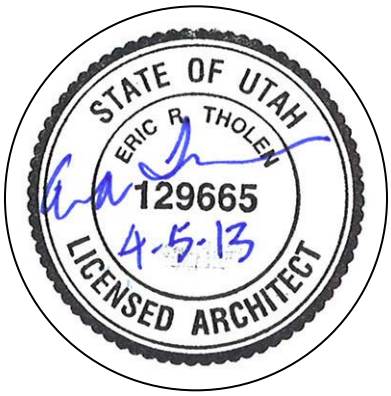

STAMP, SIGN AND DATE

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated February 15, 2013, as noted below. Acknowledge receipt of this Addendum in the space provided on the Proposal. Failure to do so may subject Bidder to disqualification.

This Addendum consists of Eighty Six (86) addendum pages including the cover, Twelve (12) Description of the Addendum pages, Four (4) specification sections totaling Thirty Four (34) pages, and Forty (40) 30 x 42 inch drawings.

QUESTIONS AND ANSWERS

3.QA01 Standard DFCM General Conditions require inclusion of sales taxes unless stated in the project documents. DFCM projects are usually tax exempt. Is the BEQ Facility tax exempt?

Response: No, the BEQ Facility IS NOT tax exempt.

3.QA02 Work on a military base usually requires each worker to be a US Citizen and pass a background check. Will this be required? Also, what items in a person's past may preclude them from working on this project?

Response: No, to work on the BEQ job IS NOT required to be a US Citizen, but employees must comply with stated under Specification Section 011000, 1.10, F.

3.QA03 Will the owner cover the costs of permits and fees?

Response:

- The State of Utah is covering the cost of the Building Permit.
- The costs of Code and Special Inspections are paid by the owner in accordance with DFCM General Conditions, 9.1.1, but if procedures for testing, inspection or approval reveal failure, the contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the DFCM's expenses and retesting for verification in accordance with DFCM General Conditions, 9.1.3
- The sewer and water reclamation connections, impact fees, inspection fees, and design review fees are included as an allowance under the Bid Form. The fees under this allowance must conform to the requirements and procedures indicated under Specification Section 012100 – ALLOWANCES.

- The gas connection, meter cost and their installations are included as part of the scope of work of the contractor, and they do not require a connection fee or impact fee because Camp Williams has only one meter with Questar Gas and all work inside of Camp Williams does not require connections or inspections by Questar Gas.
- The water lines are owned by Camp Williams and there is not an impact fee or connection fee associated with this utility, though all the work associated with the construction of new water lines and connections to existing lines, including the cost of the meter and its installation is part of the scope of work of the contractor.
- The electrical connection, meters costs and their installations are included as part of the scope of work of the contractor, and they do not require a connection fee or impact fee because Camp Williams has only one meter with Rocky Mountain Power and all work inside of Camp Williams does not require connections or inspections by Rocky Mountain Power.

3.QA04 Is flooring limited to the state contract?

Response: No, flooring IS NOT limited to the state contract.

3.QA05 The specification manual does not seem to contain a section for flag poles and sheet CS101 does not seem to identify a flag pole. Is a flag pole required?

Response: No, a flag pole IS NOT required.

3.QA06 In the specification manual there is Appendix L and DD Form 1354. May these be completed after the bid?

Response:

- Appendix L has been removed from the specifications per Addendum 2.
- The included within the specifications DD Form 1354 is the generic model of the form that the successful bidder must help completing for Utah National Guard at the end of the construction phase, during the closeout of the project.

3.QA07 Section 051200: The link to the approved steel fabricator list in the specification section 05 1200.1.7.A.1 fails:

http://dfcm.utah.gov/downloads/bldg_official/approved_fabricator_list_12.pdf

The link found via search on the DFCM website also fails. Please provide correct link.

Response: DFCM changes every year the link by updating the digits within the link. Modify the last digit to read 3 in lieu of 2 per the updated link below.

http://dfcm.utah.gov/downloads/bldg_official/approved_fabricator_list_13.pdf

3.QA08 Section 271000: Section 271000.1.6.A.1. still lists Mike Hansen's pager number. This may need to be updated. Drawing format for cabling drawings per section 271000.3.7.I.1 of AutoCAD 2000 may also need to be updated.

Response:

- John Mike Hansen phone number is: 801-432-4118
- Drawing format for cabling drawings: AutoCAD 2000 is correct and it does not need to be updated.

3.QA09 What type of construction are the existing buildings? Concrete, Steel, Wood? May demolition bidders gain access to visit and walk the existing structures?

Response:

- The existing buildings are built of different materials. Mainly the structures are wood stick framing, but bidders may need to visit the site to have a clear understanding of the building components that are going to be demolished.
- Bidders may visit and walk the existing structures. UNG is to schedule a date, hour and place of reunion to visit and walk the existing structures. This schedule will be provided at a later addendum.

3.QA10 The alternates are not identified on the electrical drawings. This is causing difficulty with electrical estimators.

The alternates listed on the overall site plan CS101 do not seem to match the descriptions or architectural drawings.

Alternates are not identified on the enlarged architectural drawings.

Response:

- The alternates will be identified on the ES101 electrical drawing at a later addendum.
- Civil drawings are being revised under Addendum 3 to include the current number of alternates and their sequential order in accordance with the Addendum 2.
- Alternates do not need to be identified on the enlarged plans of any of the disciplines. Please use the overall plans which provide better clarity of the alternates and their location.

3.QA11 Request clarification of an item or treatment called out in the architectural drawing for the UNG Bachelors Enlisted Quarters. Detail C1/ A514 calls for "Exterior Weather Sealant" please let us know what is wanted.

Response: Remove the exterior weather sealant from the precast concrete details.

CHANGES TO SPECIFICATIONS

<u>SPECIFICATIONS</u>

Section 000110 - TABLE OF CONTENTS

1. Replace Section 000110 AD2 with revised Section 000100 AD3.

Section 012100 - ALLOWANCES

1. At 1.4.A, revise paragraph to read "Fee allowance includes the cost of South Valley Sewer District and South Valley Water Reclamation fee."
2. At 3.1.A, revise paragraph to read "Allowance No. 1: Include the sum of $75,000.00 for South Valley Sewer District and South Valley Water Reclamation fee, which includes:"

Section 012300 - ALTERNATES

1. Replace Section 012300 AD2 with revised Section 012300 AD3.

Section 088000 - GLAZING

1. Replace existing Section 088000 with revised Section 088000 AD3.

Section 101416 - PLAQUES

1. As directed by the Owner for a sole source product, at 2.1.A add the following:

    1. Manufacturers: Subject to compliance with requirements, provide products by the following:

        a. Utah Correctional Industries (UCI).

    Renumber remaining paragraphs.

Section 101419 - DIMENSIONAL LETTER SIGNAGE

1. As directed by the Owner for a sole source product, at 2.2.A add the following:

    1. Manufacturers: Subject to compliance with requirements, provide products by the following:

        a. Utah Correctional Industries (UCI).

    Renumber remaining paragraphs.

Section 101423 - PANEL SIGNAGE

1. As directed by the Owner for a sole source product, at 2.2.A add the following:

    1. Manufacturers: Subject to compliance with requirements, provide products by the following:

        a. Utah Correctional Industries (UCI).

    Renumber remaining paragraphs.

Section 220100 – MECHANICAL REQUIREMENTS

2. Add the following sentence to section 1.31.B: “Reference section 019113 for general conditions regarding commissioning.”

Section 221316 – SANITARY WASTE AND VENT PIPING

1. Delete the reference to section 221313.

Section 225444 - PACKAGED BOOSTER PUMP

1. Entire section added.

Section 230900 – UTAH YAMAS CONTROLS: SCHNEIDER ELECTRIC – BUILDINGS

1. Add the following paragraph to section 1.9: "The Building Automation System submittals shall be submitted for design and CxA review no later than 30 days following the award of the project. The ATC Contractor shall be responsible for all delays resulting from not meeting this schedule requirement and shall be liable for all associated liquidated damages."

Section 260513 – MEDIUM-VOLTAGE CABLES

3. Added paragraph 1.1.B that requires compliance with the commissioning specifications, Section 019113. Specification section 260513 is included for reference.

Section 264113 – LIGHTNING PROTECTION FOR STRUCTURES

1. Revised paragraph 2.1 to include Robbins Lightning, Inc. as an approved manufacturer. Specifications section 264113 is included for reference.

Section 275116 – MASS NOTIFICATION SYSTEMS

Clarification to paragraph "2.1 Manufacturers" – approved equal manufacturers include any of the manufacturers listed in "Section 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM" that make a combined fire alarm/mass notification system panel (e.g. EST, FCI, Notifier, etc.). Any of the manufactures listed that do not have an integrated FA/MNS system will be required to use an approved MNS system and the contractor will be required to provide all programming and interfacing between the fire alarm panel and the mass notification panel to meet the requirements of UFC 4-021-01 and the contract documents. No revision to the specification section was made so the specification section was not reissued.

Section 333100 - SANITARY SEWER SYSTEMS

1. Add new Section 333100 AD3.

CHANGES TO DRAWINGS

CIVIL

3.C01 Replace sheet CD101 with enclosed revised sheet CD101. The following are the updates made:

- Revised limits of construction
- Added note 6 referring structural fill for areas of demolition.

3.C02 Replace sheet CS101 with enclosed revised sheet CS101. The following are the updates made:

- Revised limits of construction
- Revised numbering for alternates and description
- Revised description of notes
- Located Northing/Easting for BEQ buildings.

3.C03 Replace sheet CU101 with enclosed revised sheet CU101. The following are the updates made:

- Added two drop manholes for SSMH 5 and SSMH6. Laterals did not changed in depth or location.

3.C04 Replace sheet C501 with enclosed revised sheet C501. The following are the updates made:

- Added a new drop manhole detail.

LANDSCAPE

3.L01 Replace sheet LS101 with enclosed updated LS101. The following are the updates made:

- Changes to alternate numbering.

3.L02 Replace sheet LS102 with enclosed updated LS102. The following are the updates made:

- Changes to alternate numbering.

3.L03 Replace sheet LS103 with enclosed updated LS103. The following are the updates made:

- Changes to alternate numbering.

3.L04 Replace sheet LS201 with enclosed updated LS201. The following are the updates made:

- Changes to alternate numbering.

3.L05 Replace sheet LS202 with enclosed updated LS202. The following are the updates made:

- Changes to alternate numbering.

3.L06 Replace sheet LS203 with enclosed updated LS203. The following are the updates made:

- Changes to alternate numbering.

3.L07 Replace sheet LS501 with enclosed updated LS501. The following are the updates made:

- Changes to alternate numbering.

3.L08 Replace sheet LS502 with enclosed updated LS502. The following are the updates made:

- Changes to alternate numbering.

3.L09 Replace sheet LS503 with enclosed updated LS503. The following are the updates made:

- Changes to alternate numbering.

3.L10 Replace sheet LS504 with enclosed updated LS504. The following are the updates made:

- Changes to alternate numbering.

ARCHITECTURAL

3.A01 Replace sheet A514 with enclosed updated A514. The following are the updates made:

- Removed the exterior weather sealant from the precast concrete details.

MECHANICAL- PLUMBING

3.M01 On Sheet P101A add the following keyed note near the "Base Bid" indicator between gridlines 'A' and 'B' on the south wing: IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

3.M02 On sheet P101A add the following keyed note near the "Base Bid" indicator between gridlines 'A' and 'B' on the south wing: IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

3.M03 On sheet P102A the keyed note #5 near the "Main Construction" indicated between gridlines 'A' and 'B' on the south wing shall be replaced with the following note: IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

3.M04 On sheet P405 the PRV station consisting of PRV-1 and PRV-2 along gridline 7 and between gridlines C & D shall be deleted from the plan. In that same location the booster pump package containing BP-1 & 2 is added to the plan as well as expansion tank DET-2.

3.M05 On sheet P601 the DOMESTIC EXPANSION TANK SCHEDULE is amended to include DET-2 and the DOMESTIC PUMP SCHEDULE is amended to include BP-1 & 2.

3.M06 On sheet P602 the DOMESTIC PRV SCHEDULE shall be deleted.

3.M07 Update alternate numbering as follows: Alternate #4 becomes Alternate #5, Alternate #3 becomes Alternate #4, Alternate #2 becomes Alternate #3 and Alternate #1 becomes Alternate #2. These changes are reflected on the following updated sheets: P100, P101A, P102A, P103A, P104, P402, P601,

P602, P701, M100, M101A, M102A, M103A, MP101A, MP102A and MP103A.

3.M08 Delete keyed note 4 from sheet MP103A.

ELECTRICAL

3.E01 Sheet ES101 – Added description for the bid alternates. Bid alternates shall apply to all electrical sheets. See the attached sheet ES101.

3.E02 Sheet ES501 – Modified the light pole base detail to have ties at 12-inches on center for the entirety of the pole base. See the attached sheet ES501.

3.E03 Sheet EP404 - Detail E4. Changed the title from NE 160 to NE 252. See the attached sheet EP404.

3.E04 Sheet EP404 - Detail D2. Deleted LAN G6 equipment from detail. NE 160 will be for the headend equipment for the WIFI and the TV distribution only. The building voice and data LAN (G6) will be in MDF NE 167. See the attached sheet EP404.

3.E05 Sheet ET101A – Detail C6. Changed destination notes for TV cable from NE 167 to NE 160. See the attached sheet ET101A.

3.E06 Sheet ET101A. Added General sheet Note #2 that reads: "All Visipatch panels and other termination equipment shall be in compliance with the most current G6 standard and shall be approved by UTNG prior to ordering equipment." See the attached sheet ET101A.

3.E07 Sheet ET101B, Detail D6 - Changed destination notes for TV cable from NE 167 to NE 160. See the attached sheet ET101B.

3.E08 Sheet ET101B, Detail D6 - Deleted TV termination location from NE 167 and added the location to NE 160. See the attached sheet ET101B.

3.E09 Sheet ET101B, Detail D6 - Changed the data symbols in various locations to match the standard data symbol for clarity. See the attached sheet ET101B.

3.E10 Sheet ET101B. Added General sheet Note #2 that reads: "All Visipatch panels and other termination equipment shall be in compliance with the most current G6 standard and shall be approved by UTNG prior to ordering equipment." See the attached sheet ET101B.

3.E11 Sheet ET601, VOICE/DATA EQUIPMENT/CABLE LIST - Deleted the following from the list: The metal backboards,(blue and yellow), and the Spool Boards. See the attached sheet ET601.

3.E12 Sheet ET601, VOICE/DATA EQUIPMENT/CABLE LIST - Changed the manufacturer for the LIU from Siecor to Corning CCH03U. See the attached sheet ET601.

3.E13 Sheet ET601, Detail E2- Changed the 2-inch conduit for CATV to a 4-inch conduit. This detail also now indicates that 2 of the 5 each 4 inch conduits will terminate in MDF Room NE 167 and the other 3 each 4 inch conduits will terminate in IDF NE 160. Four innerducts shall also be added to one of the three conduits to IDF NE 160. See the attached sheet ET601.

3.E14 Sheet ET601, Revised the conduit riser diagram. Three each 4-inch conduits for CATV and WIFI shall terminate in IDF NE 160 and 2 each 4 inch conduits shall terminate in MDF NE 167. See the attached sheet ET601.

3.E15 Sheet ET602 - Detail D4. Changed label for the location of the TV headend equipment from NE 167 to NE 160. See the attached sheet ET602.

3.E16 Sheet ET603, Detail E6 - Added IDF NE 160 for the headend equipment for the WIFI data and the TV distribution systems. See the attached sheet ET603.

3.E17 Sheet ET603, Detail E6 - Revised the detail to indicate the TV visipatch panel being separated from the LAN G6 data equipment and installed with the WIFI data visipatch equipment. See the attached sheet ET603.

3.E18 Sheet ET603, Detail E6 - Changed the backbone fiber cable for the LAN G6 voice/data system from 50 micron multimode to singlemode fiber: same quantity of strands. See the attached sheet ET603.

3.E19 Sheet ET603, Detail E6 - Added two labels to the fiber backbone for the WIFI system that read “4 strands 50 micron multimode fiber “ similar to the other WIFI backbone cables already labeled. See the attached sheet ET603.

3.E20 Sheet ET603. Added General sheet Note #2 that reads: “All Visipatch panels and other termination equipment shall be in compliance with the most current G6 standard and shall be approved by UTNG prior to ordering equipment.” See the attached sheet ET603.

END OF ADDENDUM No. 3

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*FOR INFORMATION ONLY AND NOT A PART OF THE CONTRACT DOCUMENTS

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PROCUREMENT AND CONTRACTING REQUIREMENTS WILL BE PROVIDED BY OWNER

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262913 ENCLOSED CONTROLLERS 12
264113 LIGHTNING PROTECTION FOR STRUCTURES 4
265100 INTERIOR LIGHTING 13
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DIVISION 27 - COMMUNICATIONS

271000 COMMUNICATIONS STRUCTURED CABLING 15
274133 MASTER ANTENNA TELEVISION SYSTEM 10
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DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

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DIVISIONS 29 - 30 (NOT USED)

DIVISION 31 - EARTHWORK

311000 SITE CLEARING 6
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321216 ASPHALT PAVING 10

321313 CONCRETE PAVING 17
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DIVISION 33 - UTILITIES

330500 COMMON WORK RESULTS FOR UTILITIES 15
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DIVISIONS 34 - 49 (NOT USED)

END SECTION 000110 AD3

SECTION 088000 AD3 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.
2. Doors.
3. Storefront framing.
4. Glazed entrances.
5. Interior borrowed lites.

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit.

1.4 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Design glass, including comprehensive engineering analysis according to ICC's 2009 International Building Code by a qualified professional engineer, using the following design criteria:

1. Design Wind Pressures: As indicated on Drawings.

2. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
3. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

1.5 ACTION SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Glass Samples: For each type of the following products; 12 inches square.

1. Tinted glass.
2. Insulating glass.

C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installers and manufacturers of insulating-glass units with sputter-coated, low-e coatings.

B. Product Certificates: For glass and glazing products, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for tinted glass, coated glass, and insulating glass.

D. Warranties: Sample of special warranties.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

D. Source Limitations for Glass: Obtain tinted float glass coated float glass and insulating glass from single source from single manufacturer for each glass type.

E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

F. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA's "Glazing Manual."
2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

G. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

H. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, and the fire-resistance rating in minutes.

I. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

J. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F.

1.10 WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS

A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
2. For uncoated glass, comply with requirements for Condition A.
3. For coated vision glass, comply with requirements for Condition C (other coated glass).

C. Tinted Float Glass: Class 2, complying with other requirements specified.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Solarsheild Green; ACG.
   b. Solexia; PPG.
   c. Green; Viracon.

2. Tint Color: Green.

2.3 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

   1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
   2. Spacer: Manufacturer's standard spacer material and construction.
   3. Desiccant: Molecular sieve or silica gel, or blend of both.

B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Insulating-Glass Types" Article.

2.4 FIRE-PROTECTION-RATED GLAZING

A. Fire-Protection-Rated Glazing, General: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 (positsive pressure) or UL 10C for door assemblies, NFPA 257 or UL 9 for window assemblies.

B. Laminated Ceramic Glazing: Laminated glass made from 2 plies of clear, ceramic flat glass; 5/16-inch total nominal thickness; complying with testing requirements in 16 CFR 1201 for Category II materials.

   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

      a. Nippon Electric Glass Co., Ltd. (distributed by Technical Glass Products); FireLite Plus.
      b. Safti First.
      c. Schott North America, Inc.; Laminated Pyran Crystal.
      d. Vetrotech Saint-Gobain; SGG Keralite FR-L.

   2. Ratings: 20 minute, 45 minute.

C. Laminated Glass with Intumescent Interlayers: Laminated glass made from multiple plies of uncoated, clear float glass; with intumescent interlayers; complying with testing requirements in 16 CFR 1201 for Category II materials, and UL 263 or ASTM E 119.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

    a. InterEdge, Inc., a subsidiary of AFG Industries, Inc.; Pyrobel.
    b. Pilkington Group Limited (distributed by Technical Glass Products); PyroStop.
    c. Safti First.
    d. Vetrotech Saint-Gobain; SGG Contraflam N2.

2. Rating: 60 minute.

2.5 GLAZING SEALANTS

A. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

2.6 GLAZING TAPES

A. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

B. At fire rated glazing, use glazing tape complying with fire-rated glazing manufacturer's requirements.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.8 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

2.9 MONOLITHIC-GLASS TYPES

A. Glass Type G-1: Clear float glass.

1. Thickness: 6.0 mm.

B. Glass Type G-2: Clear float glass fully tempered float glass.

1. Thickness: 6.0 mm.
2. Provide safety glazing labeling.

2.10 INSULATING-GLASS TYPES

A. Glass Type IG-1: Low-e-coated, tinted insulating glass.

1. Overall Unit Thickness: 1 inch.
2. Thickness of Each Glass Lite: 6.0 mm.
3. Outdoor Lite: Tinted float glass.
4. Interspace Content: Air.
5. Indoor Lite: Clear float glass.
6. Low-E Coating: Pyrolytic or sputtered on second surface.
7. Visible Light Transmittance: 57 percent minimum.
8. Winter Nighttime U-Factor: 0.29 maximum.
9. Summer Daytime U-Factor: 0.28 maximum.

10. Solar Heat Gain Coefficient: 0.32 maximum

B. Glass Type IG-2: Low-e-coated, tinted insulating glass, fully tempered.

1. Overall Unit Thickness: 1 inch.
2. Thickness of Each Glass Lite: 6.0 mm.
3. Outdoor Lite: Tinted fully tempered float glass.
4. Interspace Content: Air.
5. Indoor Lite: Clear fully tempered float glass.
6. Low-E Coating: Pyrolytic or sputtered on second surface.
7. Visible Light Transmittance: 57 percent minimum.
8. Winter Nighttime U-Factor: 0.29 maximum.
9. Summer Daytime U-Factor: 0.28 maximum.
10. Solar Heat Gain Coefficient: 0.32 maximum
11. Provide safety glazing labeling.

2.11 FIRE-PROTECTION-RATED GLAZING TYPES

A. Glass Type FG-1: 20-minute fire-protection-rated glazing at doors; laminated ceramic safety glazing.

1. Provide safety glazing labeling.

B. Glass Type FG-2: 45-minute fire-protection-rated glazing at windows; laminated ceramic safety glazing.

1. Provide safety glazing labeling.

C. Glass Type FG-3: 60-minute fire-protection-rated glazing at windows; laminated glass with intumescent interlayers.

1. Provide safety glazing labeling.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where length plus width is larger than 50 inches.

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact

with glass, remove substances immediately as recommended in writing by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000 AD3

SECTION 225444 AD3 - PACKAGED BOOSTER PUMP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 WORK INCLUDED

A. Variable Speed Packaged Pumping System

1.3 REFERENCE STANDARDS

The work in this section is subject to the requirements of applicable portions of the following standards:

A. Hydraulic Institute

B. ANSI – American National Standards Institute

C. ASTM – American Society for Testing and Materials

D. IEEE – Institute of Electrical and Electronics Engineers

E. NEMA – National Electrical Manufacturers Association

F. NEC – National Electrical Code

G. ISO – International Standards Organization

H. UL – Underwriters Laboratories, Inc.

PART 2 – PRODUCTS

2.1 VARIABLE SPEED PACKAGED PUMPING SYSTEM WITH INTEGRATED VARIABLE FREQUENCY DRIVE MOTORS

A. Furnish and install a pre-fabricated and tested variable speed packaged pumping system to maintain constant water delivery pressure.

B. The packaged pump system shall be a standard product of a single pump manufacturer. The entire pump system including pumps and pump logic controller, shall be designed, built, and tested by the same manufacturer.

C. The complete packaged water booster pump system shall be certified and listed by UL (Category QCZJ – Packaged Pumping Systems) for conformance to U.S. and Canadian Standards.

D. The complete packaged pumping system shall be NSF61 Annex G Listed for drinking water and low lead requirements.

2.2 PUMPS

A. All pumps shall be ANSI/NSF 61 Annex G Listed for drinking water and low lead requirements.

B. The pumps shall be of the in-line vertical multi-stage design.

C. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the preferred operating region. The shut-off head shall be a minimum of 20% higher than the head at the best efficiency point.

D. Small Vertical In-Line Multi-Stage Pumps (Nominal flow from 3 to 125 gallons per minute) shall have the following features:

1. The pump impellers shall be secured directly to the pump shaft by means of a splined shaft arrangement.
2. The suction/discharge base shall have ANSI Class 250 flange or internal pipe thread (NPT) connections as determined by the pump station manufacturer.
3. Pump Construction.

a. Suction/discharge base, pump head, motor stool:	Cast iron (Class 30)
b. Impellers, diffuser chambers, outer sleeve:	304 Stainless Steel
c. Shaft	316 or 431 Stainless Steel
d. Impeller wear rings:	304 Stainless Steel
e. Shaft journals and chamber bearings:	Silicon Carbide
f. O-rings:	EPDM

Shaft couplings for motor flange sizes 184TC and smaller shall be made of cast iron or sintered steel. Shaft couplings for motor flange sizes larger than 184TC shall be made of ductile iron (ASTM 60-40-18).

Optional materials for the suction/discharge base and pump head shall be cast 316 stainless steel (ASTM CF-8M) resulting in all wetted parts of stainless steel.

4. The shaft seal shall be a balanced o-ring cartridge type with the following features:

a. Collar, Drivers, Spring:	316 Stainless Steel
b. Shaft Sleeve, Gland Plate:	316 Stainless Steel
c. Stationary Ring:	Silicon Carbide
d. Rotating Ring:	Silicon Carbide

e. O-rings: EPDM

The Silicon Carbide shall be imbedded with graphite.

5. Shaft seal replacement shall be possible without removal of any pump components other than the coupling guard, shaft coupling and motor. The entire cartridge shaft seal shall be removable as a one piece component. Pumps with motors equal to or larger than 15 hp (fifteen horsepower) shall have adequate space within the motor stool so that shaft seal replacement is possible without motor removal.

E. Large In-line Vertical Multi-Stage Pumps (Nominal flows from 130 to 500 gallons per minute) shall have the following features:

1. The pump impellers shall be secured directly to the smooth pump shaft by means of a split cone and nut design.
2. The suction/discharge base shall have ANSI Class 125 or Class 250 flange connections in a slip ring (rotating flange) design as indicated in the drawings or pump schedule.
3. Pump Construction.

a. Suction/discharge base, pump head Ductile Iron (ASTM 65-45-12)
b. Shaft couplings, flange rings: Ductile Iron (ASTM 65-45-12)
b. Shaft 431 Stainless Steel
c. Motor Stool Cast Iron (ASTM Class 30)
d. Impellers, diffuser chambers, outer sleeve: 304 Stainless Steel
e. Impeller wear rings: 304 Stainless Steel
f. Intermediate Bearing Journals: Tungsten Carbide
g. Intermediate Chamber Bearings: Leadless Tin Bronze
h. Chamber Bushings: Graphite Filled PTFE
I. O-rings: EPDM

4. The shaft seal shall be a single balanced metal bellows cartridge with the following construction:

a. Bellows: 904L Stainless Steel
b. Shaft Sleeve, Gland Plate, Drive Collar: 316 Stainless Steel
c. Stationary Ring: Carbon
d. Rotating Ring: Tungsten Carbide
e. O-rings: EPDM

5. Shaft seal replacement shall be possible without removal of any pump components other than the coupling guard, motor couplings, motor and seal cover. The entire cartridge shaft seal shall be removable as a one piece component. Pumps with motors equal to or larger than 15 hp (fifteen horsepower) shall have adequate space within the motor stool so that shaft seal replacement is possible without motor removal.

2.3 INTEGRATED VARIABLE FREQUENCY DRIVE MOTORS

A. Each motor shall be of the Integrated Variable Frequency Drive design consisting of a motor and a Variable Frequency Drive (VFD) built and tested as one unit by the same manufacturer.

B. The VFD shall be of the PWM (Pulse Width Modulation) design using current IGBT (Insulated Gate Bipolar Transistor) technology.

C. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of motor. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor magnetization current suitable for centrifugal pump control and to eliminate the need for motor de-rating.

D. The VFD shall utilize an energy optimization algorithm to minimize energy consumption. The output voltage shall be adjusted in response to the load, independent of speed.

E. The VFD shall automatically reduce the switching frequency and/or the output voltage and frequency to the motor during periods of sustained ambient temperatures that are higher than the normal operating range. The switching frequency shall be reduced before motor speed is reduced.

F. An integral RFI filter shall be standard in the VFD.

G. The VFD shall have a minimum of two skip frequency bands which can be field adjustable.

H. The VFD shall have internal solid-state overload protection designed to trip within the range of 125-150% of rated current.

I. The integrated VFD motor shall include protection against input transients, phase imbalance, loss of AC line phase, over-voltage, under-voltage, VFD over-temperature, and motor over-temperature. Three-phase integrated VFD motors shall be capable of providing full output voltage and frequency with a voltage imbalance of up to 10%.

J. The integrated VFD motor shall have, as a minimum, the following input/output capabilities:

    1. Speed Reference Signal: 0-10 VDC, 4-20mA
    2. Digital remote on/off
    3. Fault Signal Relay (NC or NO)
    4. Fieldbus communication port (RS485)

K. The motor shall be Totally Enclosed Fan Cooled (TEFC) with a standard NEMA C-Face, Class F insulation with a temperature rise no higher than Class B.

L. The cooling design of the motor and VFD shall be such that a Class B motor temperature rise is not exceeded at full rated load and speed at a minimum switching frequency of 9.0 kHz.

M. Motor drive end bearings shall be adequately sized so that the minimum L10 bearing life is 17,500 hours at the minimum allowable continuous flow rate for the pump at full rated speed.

2.4 PUMP SYSTEM CONTROLLER

A. The pump system controller shall be a standard product developed and supported by the pump manufacturer.

B. The controller shall be microprocessor based capable of having software changes and updates via personal computer (notebook). The controller user interface shall have a color display with a minimum screen size of 3-1/2” x 4-5/8” for easy viewing of system status parameters and for field programming. The display shall have a back light with contrast adjustment. Password protection of system settings shall be standard.

C. The controller shall provide internal galvanic isolation to all digital and analog inputs as well as all fieldbus connections.

D. The controller shall have the ability to be connected to a battery to maintain power on controller during periods of loss of supply power.

E. The controller shall have built in data logging capability. Logged vales shall be graphically displayed on the controller and able to be exported to computer via standard connection. A minimum of 3600 samples per logged value with the following parameters available for logging:

- Estimated flow-rate
- Speed of pumps
- Inlet pressure
- Discharge pressure
- Power consumption
- Controlling parameter (process value)

F. The controller shall display the following as status readings from a single display on the controller (this display shall be the default):

- Current value of the control parameter, (typically discharge pressure)
- Most recent existing alarm (if any)
- System status with current operating mode
- Status of each pump with current operating mode and rotational speed as a percentage (%)
- Estimated flow-rate, (not requiring flow meter connection)

G. The controller shall have as a minimum the following hardware inputs and outputs:

- Three analog inputs (4-20mA or 0-10VDC)
- Three digital inputs
- Two digital outputs
- Ethernet connection
- Field Service connection to PC for advanced programming and data logging

H. Pump system programming (field adjustable) shall include as a minimum the following:

- Water shortage protection (analog or digital)
- Transducer Settings (Suction and Discharge Analog supply/range)
- PI Controller (Proportional gain and Integral time) settings
- High system pressure indication and shut-down
- Low system pressure indication and shut-down
- Low suction pressure/level shutdown (via digital contact)
- Low suction pressure/level warning (via analog signal)
- Low suction pressure/level shutdown (via analog signal)
- Flow meter settings (if used, analog signal)

I. The system controller shall be able to accept up to seven programmable set-points via a digital input, (additional input/output module may be required).

J. The controller shall have advanced water shortage protection. When analog sensors (level or pressure) are used for water shortage protection, there shall be two indication levels. One level is for warning indication only (indication that the water level/pressure is getting lower than expected levels) and the other level is for complete system shut-down (water or level is so low that pump damage can occur). System restart after shut-down shall be manual or automatic (user selectable).

K. The system pressure set-point shall be capable of being automatically adjusted by using an external set-point influence. The set-point influence function enables the user to adjust the control parameter (typically pressure) by measuring an additional parameter. (Example: Lower the system pressure set-point based on a flow measurement to compensate for lower friction losses at lower flow rates).

L. The controller shall be capable of receiving a remote analog set-point (4-20mA or 0-10 VDC) as well as a remote system on/off (digital) signal.

M. The controller shall be able to adjust the ramp time of a change in set point on both an increase or decrease change in set point.

N. The pump system controller shall store up to 24 warning and alarms in memory. The time, date and duration of each alarm shall be recorded. A potential-free relay shall be provided for alarm notification to the building management system. The controller shall display the following alarm conditions:

High System Pressure	Low system pressure
Low suction pressure (warning and alarm)	Individual pump failure

VFD trip/failure
Loss of sensor signal (4-20 mA)
Loss of remote set-point signal (4-20mA)
System power loss

O. The pump system controller shall be mounted in a UL Type 3R rated enclosure. A self-certified NEMA enclosure rating shall not be considered equal. The entire control panel shall be UL 508 listed as an assembly. The control panel shall include a main disconnect, circuit breakers for each pump and the control circuit and control relays for alarm functions.

<u>Control panel options shall include, but not be limited to:</u>

Pump Run Lights
System Fault Light
Audible Alarm (80 db[A])
Surge Arrestor
Emergency/Normal Operation Switches
Service Disconnect Switches
Qty (9) Configurable Digital Outputs available for monitoring

P. The controller shall be capable of receiving a redundant sensor input to function as a backup to the primary sensor (typically discharge pressure).

Q. The controller shall have a pump “Test Run” feature such that pumps are switched on during periods of inactivity (system is switched to the “off” position but with electricity supply still connected). The inoperative pumps shall be switched on for a period of two to three (3-4) seconds every 24 hours, 48 hours or once per week and at specific time of day (user selectable).

R. The controller shall be capable of changing the number of pumps available to operate or have the ability limit the maximum power consumption by activation of a digital input for purposes of limited generator supplied power.

S. The controller shall be capable of displaying instantaneous power consumption (Watts or kilowatts) and cumulative energy consumption (kilowatt-hours).

T. The controller shall be capable of displaying instantaneous specific energy use (kw/gpm), (optional flow meter must be connected).

U. The actual pump performance curves (5th order polynomial) shall be loaded (software) into the pump system controller or be able to input manually into controller based on three points on pump curve of pumps controlled.

V. The controller shall be capable of displaying an estimated flow-rate on the default status screen.

W. The controller shall have the ability to compensate for pipe friction loss by decreasing pressure set-point at lower flow-rates and increasing pressure set-point at higher flow-rates without the requirement of a flow meter.

X. The controller shall have the ability to communicate common field-bus protocols, (BACnet, Modbus, Profibus, and LON), via optional communication expansion card installed inside controller.

Y. The controller shall have a built in Ethernet connection allowing controller to connected to network and access of controller via web browser and internet any where around the world where internet communication is available.

Z. The controller shall have a programmable Service Contact Field that can be populated with service contact information including: contact name, address, phone number(s) and website.

2.5 SEQUENCE OF OPERATION

A. The system controller shall operate equal capacity variable speed pumps to maintain a constant discharge pressure (system set-point). The system controller shall receive an analog signal [4-20mA] from the factory installed pressure transducer on the discharge manifold, indicating the actual system pressure. As flow demand increases the pump speed shall be increased to maintain the system set-point pressure. When the operating pump(s) reach 96% of full speed (adjustable), an additional pump will be started and will increase speed until the system set-point is achieved. When the system pressure is equal to the system set-point all pumps in operation shall reach equal operating speeds. As flow demand decreases the pump speed shall be reduced while system set-point pressure is maintained. When all pumps in operation are running at low speed the system controller shall switch off pumps when fewer pumps are able to maintain system demand.

B. The system controller shall be capable of switching pumps on and off to satisfy system demand without the use of flow switches, motor current monitors or temperature measuring devices.

C. All pumps in the system shall alternate automatically based on demand, time and fault. If flow demand is continuous (no flow shut-down does not occur), the system controller shall have the capability to alternate the pumps every 24 hours, every 48 hours or once per week. The interval and actual time of the pump change-over shall be field adjustable.

D. The system controller shall be able to control a pressure maintenance pump, (jockey pump), in the system. The set point of the pressure maintenance pump shall be able to be any value above or below the pump system's set point. The pressure maintenance pump shall be able to be staged on as back-up pump when capacity of pump system is exceeded.

2.6 LOW FLOW STOP FUNCTION

The system controller shall be capable of stopping pumps during periods of low-flow or zero-flow without wasting water or adding unwanted heat to the liquid. Temperature based no flow shut-down methods that have the potential to waste water and add unwanted temperature rise to the pumping fluid are not acceptable.

Standard Low Flow Stop and Energy Saving Mode
If a low or no flow shut-down is required (periods of low or zero demand) a bladder type diaphragm tank shall be installed with a pre-charge pressure of 70% of system set-point. The tank shall be piped to the discharge manifold or system piping downstream of the pump system. When only one pump is in operation the system controller shall be capable of detecting low flow (less than 10% of pump nominal flow) without the use of additional flow sensing devices. When a low flow is detected, the system controller shall increase pump speed until the discharge pressure reaches the stop pressure (system set-point plus 50% of programmed on/off band). The pump shall remain off until the discharge pressure reaches the start pressure (system set-point minus 50% of programmed on/off band). Upon low flow shut-down a pump shall be restarted in one of the following two ways:

A. Low Flow Restart: If the drop in pressure is slow when the start pressure is reached (indicating the flow is still low), the pump shall start and the speed shall again be increased until the stop pressure is reached and the pump shall again be switched off.

B. Normal Flow Restart: If the drop in pressure is fast (indicating the flow is greater than 10% of pump nominal flow) the pump shall start and the speed shall be increased until the system pressure reaches the system set-point.

[OPTIONAL] Low Flow Stop and Energy Saving Mode

The pump system controller shall be capable receiving a digital signal from a flow switch or an analog signal from a flow meter to indicate a low flow condition. A bladder type diaphragm tank shall be installed with a pre-charge pressure of 70% of system set-point. The tank shall be piped to the discharge manifold or system piping downstream of the pump system. When low flow is detected (signal from flow switch or meter), the system controller shall increase pump speed until the discharge pressure reaches the stop pressure (system set-point plus 50% of programmed on/off band). The pump shall remain off until the discharge pressure reaches the start pressure (system set-point minus 50% of programmed on/off band). The pump shall remain in the energy saving on/off mode during low flow indication. When low flow is no longer present (low flow indication ceases), the pump(s) shall resume constant pressure operation.

It shall be possible to change from the standard low flow stop to the optional low flow stop (and vice-versa) via the user interface.

2.7 SYSTEM CONSTRUCTION

A. Suction and discharge manifold construction shall be in way that ensures minimal pressure drops, minimize potential for corrosion, and prevents bacteria growth at intersection of piping into the manifold. Manifold construction that includes sharp edge transitions or interconnecting piping protruding into manifold is not acceptable. Manifold construction shall be such that water stagnation can not exist in manifold during operation to prevent bacteria growth inside manifold.

B. The suction and discharge manifolds shall be constructed of 316 stainless steel. Manifold connection sizes shall be as follows:

3 inch and smaller:	Male NPT threaded
4 inch through 8 inch:	ANSI Class 150 rotating flanges
10 inch and larger:	ANSI Class 150 flanges

C. Pump Isolation valves shall be provided on the suction and discharge of each pump. Isolation valve sizes 2 inch and smaller shall be nickel plated brass full port ball valves. Isolation valve sizes 3 inch and larger shall be a full lug style butterfly valve. The valve disk shall be of stainless steel. The valve seat material shall be EPDM and the body shall be cast iron, coated internally and externally with fusion-bonded epoxy.

D. A spring-loaded non-slam type check valve shall be installed on the discharge of each pump. The valve shall be a wafer style type fitted between two flanges. The head loss through the check valve shall not exceed 5 psi at the pump design capacity. Check valves 1-1/2" and smaller shall have a POM composite body and poppet, a stainless steel spring with EPDM or NBR seats. Check valves 2" and larger shall have a body material of stainless steel or epoxy coated iron (fusion bonded) with an EPDM or NBR resilient seat. Spring material shall be stainless steel. Disk shall be of stainless steel or leadless bronze.

E. For systems that require a diaphragm tank, a connection of no smaller than ¾" shall be provided on the discharge manifold.

F. A pressure transducer shall be factory installed on the discharge manifold (or field installed as specified on plans). Systems with positive inlet gauge pressure shall have a factory installed pressure transducer on the suction manifold for water shortage protection. Pressure transducers shall be made of 316 stainless steel. Transducer accuracy shall be +/- 1.0% full scale with hysteresis and repeatability of no greater than 0.1% full scale. The output signal shall be 4-20 mA with a supply voltage range of 9-32 VDC.

G. A bourdon tube pressure gauge, 2.5 inch diameter, shall be placed on the suction and discharge manifolds. The gauge shall be liquid filled and have copper alloy internal parts in a stainless steel case. Gauge accuracy shall be 2/1/2 %. The gauge shall be capable of a pressure of 30% above its maximum span without requiring recalibration.

H. Systems with a flooded suction inlet or suction lift configuration shall have a factory installed water shortage protection device on the suction manifold.

I. The base frame shall be constructed of corrosion resistant 304 stainless steel. Rubber vibration dampers shall be fitted between each pumps and baseframe to minimize vibration.

J. Depending on the system size and configuration, the control panel shall be mounted in one of the following ways:

On a 304 stainless steel fabricated control cabinet stand attached to the system skid.
On a 304 stainless steel fabricated skid, separate from the main system skid
On its own base (floor mounted with plinth)

2.8 TESTING

A. The entire pump station shall be factory tested for functionality. Functionality testing shall include the following parameters: Dry Run Protection, Minimum Pressure and Maximum Pressure alarms (where applicable), Setpoint Operation, and Motor Rotation.

B. The system shall undergo a factory hydrostatic test at the end of the production cycle. The system shall be filled with water and pressurized to 1.5 times the nameplate maximum pressure. Systems with 150# flange connections shall be tested at 350 psig, and systems with 300# flange connections shall be tested at 450 psig. The pressure shall be maintained for a minimum of 15 minutes with no leakage (slight leakage around pump(s) mechanical seal is acceptable) prior to shipment.

2.9 WARRANTY

A. The warranty period shall be a non-prorated period of 24 months from date of installation, not to exceed 30 months from date of manufacture.

END OF SECTION 225444 AD3

SECTION 333100 AD3 - SANITARY SEWERAGE SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 SECTION INCLUDES

A. Gravity sanitary sewerage systems.

1.4 REFERENCES

A. ASTM Standards:

C 478 Precast Reinforced Concrete Manhole Section.

C 891 Installation of Underground Precast Concrete Utility Structures.

C 923 Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.5 PERFORMANCE REQUIREMENTS

A. Vertical Cover: Unless indicated otherwise, two (2) feet minimum for laterals and four (4) feet when subjected to light construction equipment loads.

B. Remove any section of pipe already placed that is found to be out of alignment tolerance, defective, or damaged. Relay or replace at no additional cost to Owner.

1.6 PROJECT CONDITIONS

A. Minimize neighborhood traffic interruptions. Barricade stockpiles.

B. Provide access to adjacent properties for local traffic and pedestrians, Division 01.

C. Repair public and private facilities damaged by Contractor.

D. Before Backfilling: Provide sizes and types of equipment connections and fittings that match pipe materials when pressure testing system.

1.7 ACCEPTANCE

A. Each sanitary sewer system component must pass applicable requirements in Section 330500.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. Provide piping materials and factory fabricated piping products of sizes, types, and classes required.Gaskets: ASTM C 564, rubber.

B. Where not indicated, select product acceptable to Engineer and comply with installation requirements.

C. Provide pipe fittings and accessories of same material and weight or class as pipe, with joining method indicated or recommended by manufacturer.

2.2 MORTAR, GROUT AND CONCRETE

A. Portland cement mortar, Division 04.

B. Non-shrink grout, Division 03.

C. Concrete:

1. Cast-in-place: Class 4000.
2. Precast Concrete: Class 5000 Minimum

2.3 MANHOLES

A. Basin: Concrete floor and walls, or ASTM C 478 precast concrete.

B. Steps: None.

C. Top: Concentric cone.

D. Frame and Cover: Scoriated, asphalt coated, heavy duty, ductile iron, with flat top design meeting load rating H-20 and appropriate utility lettering. Shape, size and lifting device as necessary.

E. Pipe Connectors:

1. Precast Bases: Resilient, ASTM C 923. Sand mortar grout pipe connections.
2. Cast in Place or Connections to Existing Fixture with Plastic Pipe: Use rubber adapter gasket for precast sections. Grout, Division 03 for cast in place sections.

F. Joints in Sections: Bituminous mastic gasket-type sealant or otherwise acceptable to Engineer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify trench excavation is ready to receive work, and dimensions, and elevations are correct.

B. Hand trim excavations to required elevations. Backfill over excavations and compact, Division 31.

C. Examine areas and conditions under which materials and products are to be installed. Do not proceed with system installation until unsatisfactory conditions have been corrected in manner acceptable to system installer.

D. Clearly identify and promptly set aside defective or damaged pipe.

E. Use pipe cutting tool acceptable to pipe manufacturer.

3.2 PIPE AND FITTINGS

A. Place bell or groove end facing upstream.

B. Install gaskets per manufacturer's recommendations.

C. Plug pipeline branches, stubs or other open ends that are not to be immediately connected.

D. Clean interior of pipe of dirt and debris as work progresses.

E. Meet line and grade tolerance in Section 330500. Use a laser device or demonstrate an equivalent method of establishing line and grade.

3.3 MANHOLES

A. Form bottom of excavation clean and smooth to correct elevation.

B. Place structures in location indicated.

C. Install precast units, ASTM C 891.

D. Provide elevations and pipe inverts for inlets and outlets indicated.

E. When structures occur in pavements, mount frame and cover 1/2 inch below finished surface. Provide a concrete cover collar between the frame and asphalt pavement. Elsewhere set frame and cover three (3) inches above finished grade.

3.4 ABANDONED UTILITIES

A. Use concrete to plug and cap all open ends of abandoned underground utilities which are to remain in place.

B. Provide closure to withstand hydrostatic or earth pressure that may result after ends of abandoned utilities have been closed.

3.5 TAP CONNECTIONS – 6 INCHES AND SMALLER

A. Field cutting into new or existing piping will not be permitted unless written permission is obtained from Engineer.

B. Make connections to existing pipe and underground structures, so connections will conform as nearly as practicable to requirements specified for new work.

C. Use commercially manufactured wyes for branch connections. Spring wyes into existing line and encase entire wye, plus six (6) inches overlap, with not less than six (6) inches of concrete.

D. For taps into existing 24 inches or larger piping, or to underground structures, cut opening into unit sufficiently large to allow three (3) inches of concrete to be packed around entering connection. Cut ends of connection passing through pipe or structure wall to conform to shape of and parallel with inside wall, unless otherwise indicated. Grout connection to provide smooth transition inlet into pipe.

3.6 JOINTS

A. Join pipe per manufacturer's recommendation or allowed.

B. Join Pipe of Different Sizes: At manholes only.

C. Use neoprene couplings with stainless steel bands to make connections between dissimilar pipe, or where standard pipeline joints are impractical.

3.7 COMMISSIONING

A. Before backfilling, provide sizes and types of equipment connections and fittings that match pipe materials when pressure testing system.

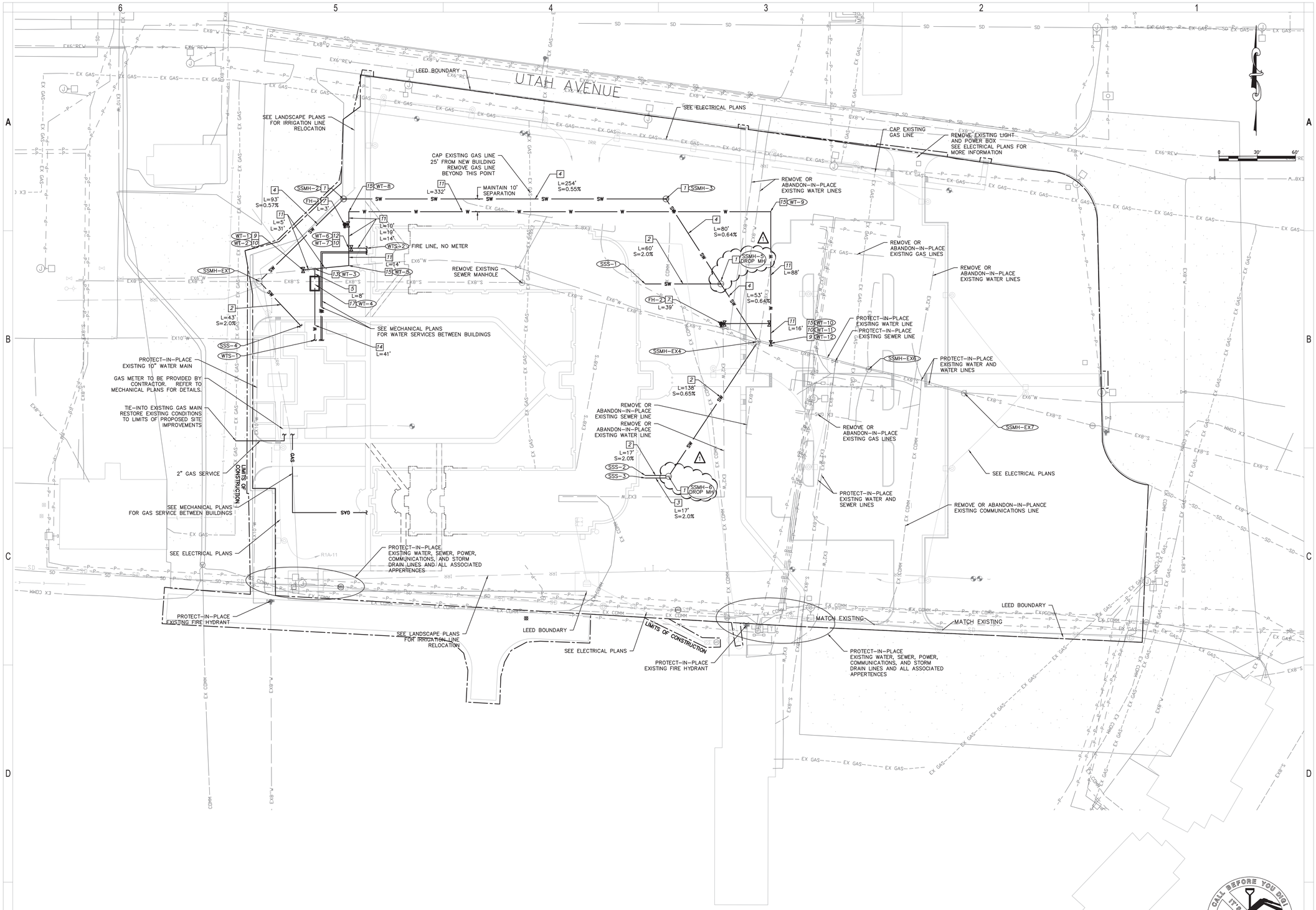
B. Provide temporary paved surfaces where trenches pass through roadways, driveways, or sidewalks.

3.8 CLEANING

A. Remove debris, concrete, or other extraneous material that accumulates in existing pipes or structures.

B. Clean all pipelines after testing. Do not flush sand, gravel, concrete, debris or other materials into existing piping systems.

END OF SECTION 333100 AD3



CULINARY WATER SYSTEM			
DESCRIPTION	NORTHING	EASTING	COMMENTS
WT-01	329241.8319	522551.6350	6"X8" REDUCER
WT-02	329241.8319	522551.6350	8" GATE VALVE
WT-03	329242.7582	522560.8741	8"X4"X8" TEE
WT-04	329231.1886	522560.8035	4" METER W/ CONCRETE BOX
WT-05	329245.2901	522587.4462	8" 90° BEND
WT-06	329258.9497	522587.4722	8"X8"X8" TEE
WT-07	329258.9497	522587.4722	8" GATE VALVE
WT-08	329287.6221	522587.5269	8" 90° BEND
WT-09	329287.6221	522918.8840	8" 90° BEND
WT-10	329184.2613	522918.8840	8" 90° BEND
WT-11	329184.2613	522918.8840	8" GATE VALVE
WT-12	329184.2613	522918.8840	8"X6" REDUCER

WATER/SEWER/GAS SERVICES		
DESCRIPTION	NORTHING	EASTING
WTS-1	329186.7214	522560.8741
WTS-2	329258.9497	522601.4939
SSS-1	329230.8796	522820.3606
SSS-2	329080.4914	522820.3607
SSS-3	329078.4941	522820.3607
SSS-4	329197.9988	522549.8019
GS-1	329112.6685	522536.8283
FH-1	329277.6221	522584.3401
FH-2	329199.7630	522879.9593

SANITARY SEWER SYSTEM							
DESCRIPTION	NORTHING	EASTING	RIM ELEVATION	INVERT OUT	INVERT IN	INVERT IN	COMMENTS
SSMH-EX1	329233.0250	522517.2144	4790.98	4780.63 (NE)	4780.73 (W)	4780.73 (SE)	EXISTING MANHOLE, ADD NEW OPENING, CLOSE EAST OPENING
SSMH-2	329297.6221	522583.4461	4788.88	4780.00 (E)	4780.10 (W)	–	
SSMH-3	329297.6221	522836.5761	4787.04	4778.50 (SE)	4778.60 (W)	4778.60 (SW)	
SSMH-EX4	329185.6800	522908.7164	4785.11	4777.74 (E)	4777.85 (SW)	4777.85 (NW)	EXISTING MANHOLE, RAISE TO GRADE. (APPROX 0.6') CORE & GROUT NEW NW AND SW OPENINGS, PLUG EXISTING WEST OPENING, REMOVE EXISTING WATER LINE OUT OF MANHOLE
SSMH-5	329079.7457	522838.6387	4788.20	4778.75 (NE)	4778.85 (SW)	4778.85 (W)	DROP MANHOLE STRUCTURE, SEE DETAIL E, SHEET C501
SSMH-EX6	329163.7777	522995.8653	4781.72	–	–	–	EXISTING MANHOLE, RAISE TO GRADE (APPROX 1.3').
SSMH-EX7	329145.0630	523070.7114	4778.60	–	–	–	EXISTING MANHOLE, RAISE TO GRADE. (APPROX 1.5')
SSMH-6	329230.8796	522879.6877	4787.25	4777.88 (SE)	4777.98 (NW)	4778.98 (W)	DROP MANHOLE STRUCTURE, SEE DETAIL E, SHEET C501

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GENERAL NOTES:

1. REMOVE ALL UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE NEW BUILDING EXCAVATION.

2. COORDINATE WITH OWNER BEFORE DISRUPTING ANY UTILITY SERVICE.

3. REMOVE OR ABANDON-IN-PLACE ALL UNDERGROUND UTILITIES WITHIN THE LEED BOUNDARY LIMITS THAT WILL NO LONGER BE IN USE, ABANDONING UTILITIES MUST BE ACCEPTABLE AND NOT INTERFERE WITH SITE IMPROVEMENTS, CONSTRUCTION, AND AESTHETICS.

4. SEE ELECTRICAL PLANS FOR ELECTRICAL REMOVALS AND SITE LAYOUT.

5. SEE MECHANICAL PLANS FOR WATER AND GAS SERVICES BETWEEN MECHANICAL BUILDING AND BEQ BUILDING.

6. SEE LANDSCAPE PLANS FOR IRRIGATION REMOVALS AND SITE LAYOUT.

7. ALL SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH SOUTH VALLEY SEWER DISTRICT'S DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS.

8. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES AND OTHER UTILITIES BEFORE STAKING OR CONSTRUCTING ANY NEW SEWER LINES.

9. FOUR FEET OF COVER WILL BE REQUIRED OVER ALL SEWER LINES.

10. SEWER AND WATER LATERALS WILL BE STUBBED TO WITHIN FIVE FEET OF THE BUILDING. SEE PLUMBING PLANS FOR CONTINUATION INTO THE BUILDING.

11. ADJUST SERVICE CONNECTION LOCATIONS AND PIPE LENGTHS BASED ON ALTERNATIVE TO BE CONSTRUCTED.

CONSTRUCTION NOTES:

1. INSTALL SANITARY SEWER MANHOLE PER DETAIL A, SHEET C501
2. INSTALL 4" SS SDR-35 PVC PER DETAIL A, SHEET C501
3. INSTALL 6" SS SDR-35 PVC PER DETAIL A, SHEET C501
4. INSTALL 8" SS SDR-35 PVC PER DETAIL A, SHEET C501
5. NOT USED
6. ADJUST EXISTING MANHOLE RIM TO NEW GRADE
7. INSTALL FIRE HYDRANT ASSEMBLY PER DETAIL S, SHEET C506
8. ROTATE OR INSTALL NEW CONCENTRIC MANHOLE CONE AS NEEDED TO AVOID CONFLICT WITH NEW VERTICAL CURB, SEE DETAIL A, SHEET C501 IF NEEDED
9. INSTALL 8"X6" REDUCER
10. INSTALL 8" GATE WATER VALVE PER DETAIL U, SHEET C506
11. INSTALL 8" W C-900 DR-18 PIPE, MAINTAIN 5' MINIMUM COVER PER DETAIL B, SHEET C501
12. INSTALL 8"X8"X8" TEE W/TRUST BLOCK PER DETAIL T, SHEET C506
13. INSTALL 8"X4"X8" TEE W/TRUST BLOCK PER DETAIL T, SHEET C506
14. INSTALL 4" W C-900 DR-18 PIPE, MAINTAIN 5' MINIMUM COVER PER DETAIL B, SHEET C501
15. INSTALL 8" 90° ELBOW W/TRUST BLOCK PER DETAIL T, SHEET C506
16. NOT USED
17. INSTALL 4" METER W/ CONCRETE BOX, SEE DETAIL R, SHEET C506
18. NOT USED

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84062

UTILITY RELOCATION PLAN

SCALE 1:30

#	DATE	BY	DESCRIPTION
1	04/05/2013	JDU	ADDENDUM 3

DRAWN BY	NS
CHECKED BY	JDU
PROJECT NO.	11007
DRAWING NO.	CU102
DATE	02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

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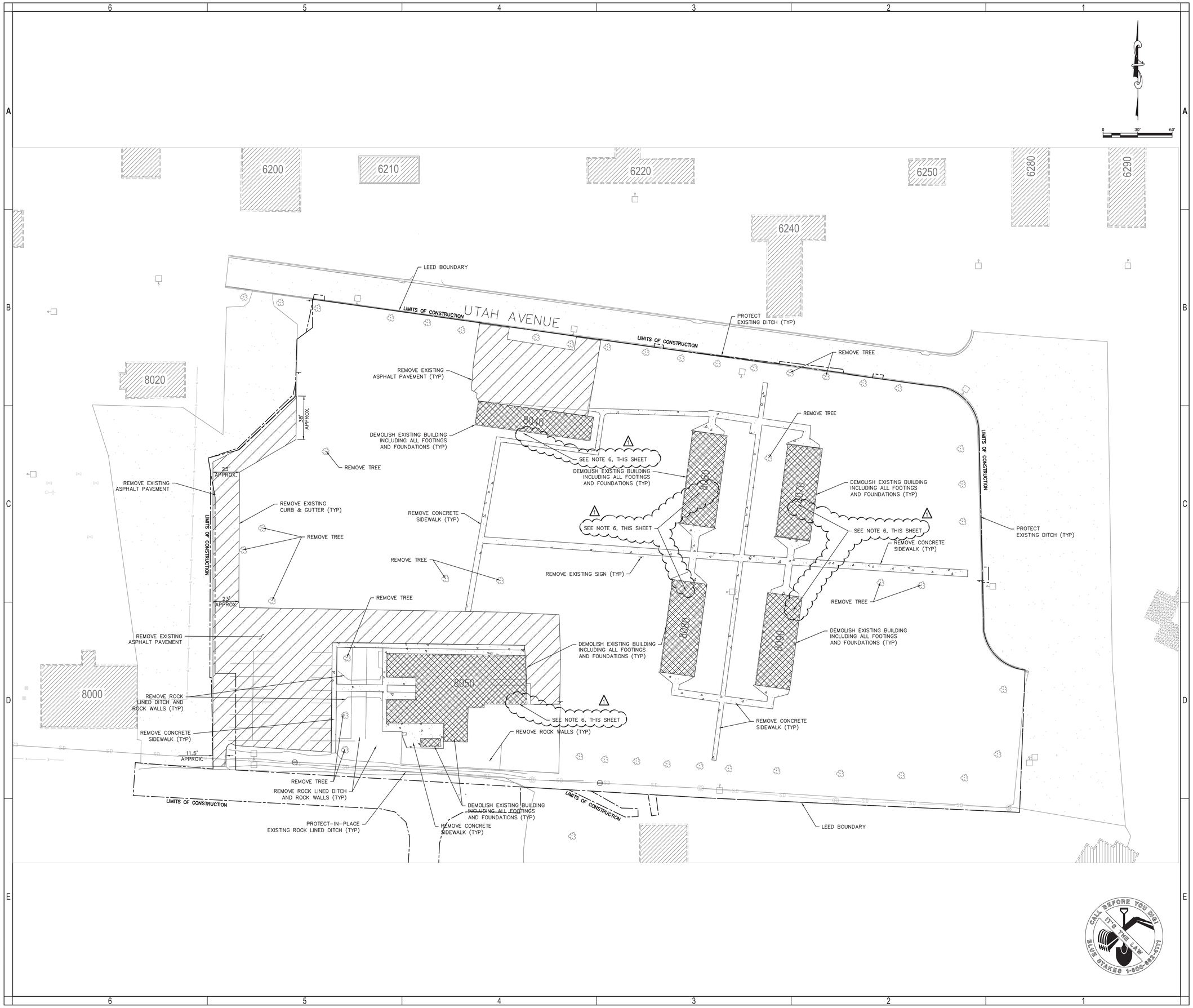

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GENERAL NOTES:

1. SEE UTILITY PLAN FOR THE LIMITS OF UNDERGROUND UTILITY REMOVAL.

2. CONTRACTOR TO COORDINATE WITH OWNER BEFORE BUILDING DEMOLITION TO ENSURE THE OWNER HAS SUFFICIENT TIME TO SALVAGE WHAT THEY NEED FROM THE EXISTING BUILDINGS.

3. PROTECT ALL TREES UNLESS OTHERWISE NOTED.

4. SEE SHEET CU102 FOR UTILITY REMOVALS

5. SEE SPECIFICATIONS AND GENERAL NOTES FOR PROPER REMOVAL AND DISPOSAL OF DEMOLISHED MATERIALS.

1 6. DUE TO EXISTING UNDOCUMENTED FILL AND DEMOLITION OF EXISTING BUILDINGS ON THE SITE– SIGNIFICANT STRUCTURAL FILL MAY BE REQUIRED IN AREAS.

- DEMOLISH EXISTING BUILDING
- REMOVE EXISTING ASPHALT
- REMOVE EXISTING CONCRETE SIDEWALK
- EXISTING PAVEMENT, PROTECT–IN–PLACE
- EXISTING TREE
- EXISTING SIGN

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DEMOLITION PLAN

SCALE 1:30

1	DATE	BY	DESCRIPTION
1	04/05/2013	JDU	ADDENDUM 3

DRAWN BY: NS
CHECKED BY: JDU
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: CD101

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

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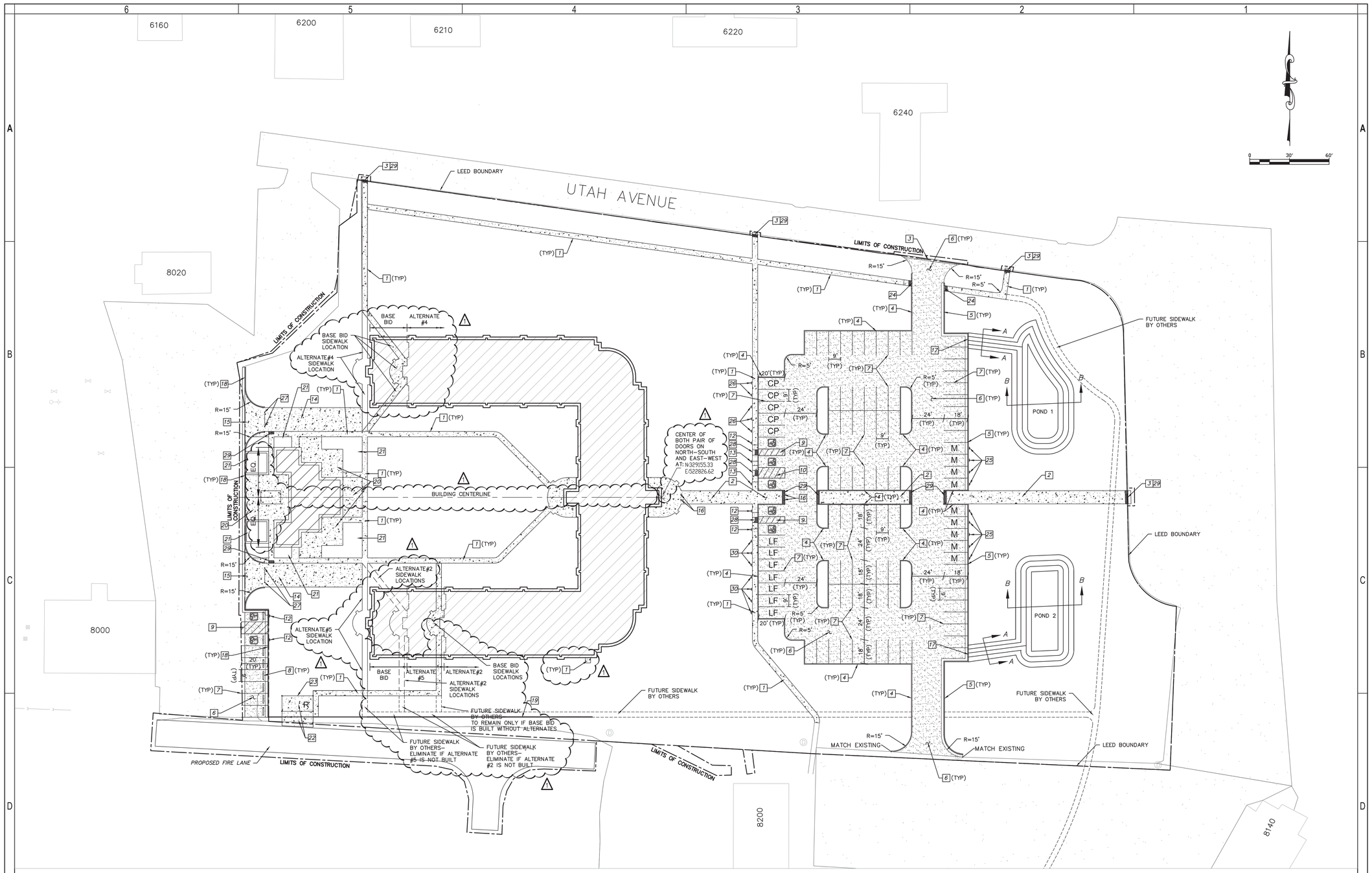


GENERAL NOTES:

1. REMOVE ALL EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE NEW BUILDING EXCAVATION.

2. REMOVE OR ABANDON-IN-PLACE ALL UNDERGROUND UTILITIES WITHIN THE LEED BOUNDARY LIMITS THAT WILL NO LONGER BE IN USE, SEE ELECTRICAL AND MECHANICAL PLANS FOR MORE INFORMATION.

3. ALL SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH SOUTH VALLEY SEWER DISTRICT'S DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS.

4. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES AND OTHER UTILITIES BEFORE STAKING OR CONSTRUCTING ANY NEW SEWER LINES.

5. FIVE FEET OF COVER WILL BE REQUIRED OVER ALL WATER LINES.

6. SEWER AND WATER LATERALS WILL BE STUBBED TO WITHIN FIVE FEET OF THE BUILDING. SEE PLUMBING PLANS FOR CONTINUATION INTO THE BUILDING.

7. CONTRACTOR TO COORDINATE WITH LANDSCAPE AND MECHANICAL SHEETS FOR LIMITS OF SNOW MELT SYSTEM.

ALTERNATE INFORMATION:

SITE PLAN DRAWINGS REFLECT CONDITIONS WITH BASE BID AND ALL ALTERNATIVES INCLUDED. THE FOLLOWING ADJUSTMENTS ARE TO BE MADE BASED ON THE ACCEPTED BID ALTERNATIVE.

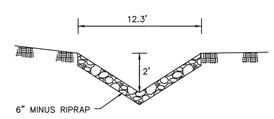
BASE BID – THE MAIN BUILDING WILL ONLY INCLUDE THE AREA SHOWN AS MAIN CONSTRUCTION. ADJUST SIDEWALK AS INDICATED BY ALTERNATE SIDEWALK LOCATIONS ATTACHED TO MAIN CONSTRUCTION.

1 REFER TO ARCHITECTURAL SET OF DRAWINGS FOR COMPLETE DESCRIPTIONS OF ALTERNATES.

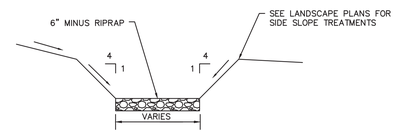
SITE LEGEND:

- LF PARKING FOR LOW EMITTING AND FUEL EFFICIENT CARS ONLY
- CP PARKING FOR COMMUTE POOL AND SHARING CARS ONLY
- M PARKING FOR MOTORCYCLES ONLY
- ADA ACCESSIBLE PARKING ONLY
- B BICYCLE RACKS (27 CAPACITY) AND STORAGE ROOM
- R RECYCLING WASTE BASKETS, BINS, AND DUMPSTER

--REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL SIGN INFORMATION--



A SWALE CROSS-SECTION
SCALE: N.T.S.



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REGISTERED PROFESSIONAL ENGINEER No. 6147547-2202 JEFFERY DAMON UPRIGHT 4/5/13 STATE OF UTAH

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GENERAL NOTES:

1. INSTALL 4' WIDE SIDEWALK PER DETAIL M, SHEET C503
2. INSTALL 10' SIDEWALK PER DETAIL J, SHEET C503
3. INSTALL DITCH CROSSING PER DETAIL V, SHEET C506
4. INSTALL 6" CURB WALL PER DETAIL L, SHEET C503
5. INSTALL 6" CURB AND GUTTER PER DETAIL K, SHEET C503
6. INSTALL ASPHALT PAVING PER DETAIL C-1, SHEET C501
7. INSTALL WHITE PARKING STRIPE PER DETAIL X, SHEET C507
8. INSTALL PARKING CHUCK PER DETAIL CC, SHEET C508
9. INSTALL ADA PARKING STRIPING PER DETAIL Y, SHEET C507
10. INSTALL VAN ACCESSIBLE ADA PARKING STRIPING PER DETAIL Y, SHEET C507
11. NOT USED
12. INSTALL ADA PARKING SIGN PER DETAIL Y, SHEET C507
13. INSTALL VAN ACCESSIBLE ADA PARKING SIGN PER DETAIL Y, SHEET C507
14. INSTALL CONCRETE FIRE LANE ACCESS PER DETAIL C-2, SHEET C501
15. INSTALL DRIVEWAY ENTRANCE PER DETAIL O, SHEET C504
16. INSTALL BOLLARD PER DETAIL W, SHEET C507
17. INSTALL CURB CUT (SEE GRADING SHEET CG101)
18. INSTALL 8" CURB AND GUTTER PER DETAIL K, SHEET C503
19. INSTALL 8" CURB PER DETAIL L, SHEET C503
20. INSTALL 4" CONCRETE PATIO PER DETAIL M, SHEET C503
21. INSTALL PLANTER WITH CONCRETE SEATING, SEE ARCHITECT PLAN SHEETS
22. INSTALL CONCRETE PAD PER DETAIL C-3, SHEET C501
23. INSTALL TRASH ENCLOSURE PER DETAIL A105
24. INSTALL CONCRETE SIDEWALK RAMP PER DETAIL N, SHEET C504
25. INSTALL SIGN "MOTORCYCLE PARKING ONLY" CONTRACTOR TO SUBMIT SHOP DRAWINGS TO OBTAIN OWNERS APPROVAL
26. INSTALL SIGN "COMMUTE POOL AND SHARING CARS ONLY" CONTRACTOR TO SUBMIT SHOP DRAWINGS TO OBTAIN OWNERS APPROVAL
27. INSTALL BOLLARD PER DETAIL W, SHEET C507 WITH HEAVY DUTY BREAK-AWAY CHAIN AND PADLOCK. INSTALL REFLECTIVE SIGN ON CHAIN- CONTRACTOR TO SUBMIT SHOP DRAWINGS TO OBTAIN OWNERS APPROVAL.
28. INSTALL MID BLOCK SIDEWALK RAMP PER DETAIL P, SHEET C504
29. INSTALL DETECTABLE WARNING SURFACE PER DETAIL PP, SHEET C504
30. INSTALL SIGN "LOW EMITTING AND FUEL EFFICIENT CARS ONLY" CONTRACTOR TO SUBMIT SHOP DRAWINGS TO OBTAIN OWNERS APPROVAL

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED QUARTERS
RIVERTON, UT 84062

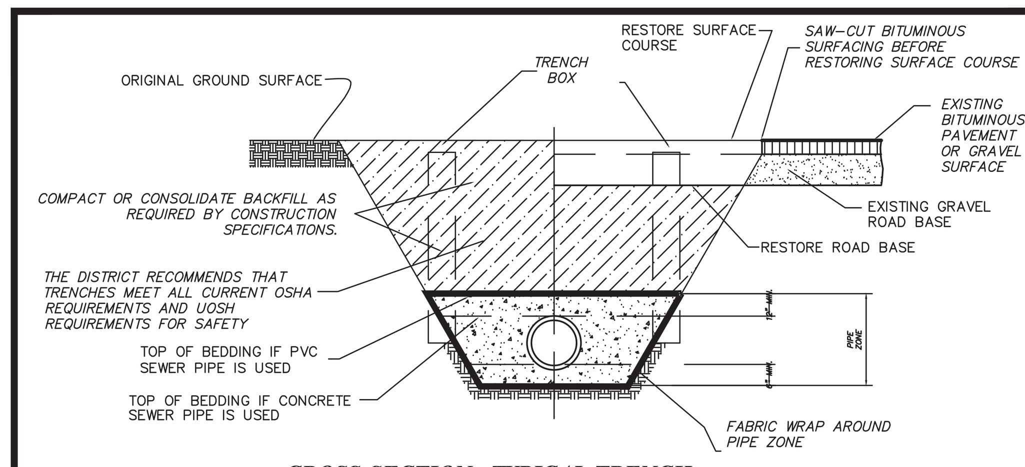
OVERALL SITE PLAN
SCALE 1:30

#	DATE	BY	DESCRIPTION
1	4/05/2013	JDU	ADDENDUM 3

DRAWN BY: NS
CHECKED BY: JDU
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: CS101

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Q:\23472\07-Design\3 dwg\BEQ Site Design.dwg Apr 04, 2013 - 1:42pm



CROSS-SECTION: TYPICAL TRENCH

RECOMMENDED TRENCH QUANTITIES

PIPE DIAMETER (INCHES) (IN.)	mm	RECOMMENDED MAXIMUM TRENCH WIDTH FOR FILL IN PIPE ZONE (INCHES)	mm	RECOMMENDED MAXIMUM WIDTH FOR FILL & SURFACING ABOVE PIPE ZONE MEASURED AT TOP OF TRENCH CENTERED ON PIPE (INCHES)	mm
4	101.6	72	1828.8	96	2438.4
6	152.4	72	1828.8	96	2438.4
8	203.2	72	1828.8	96	2438.4
10	254.0	72	1828.8	96	2438.4
12	304.8	72	1828.8	96	2438.4
15	381.0	72	1828.8	96	2438.4
18	457.2	72	1828.8	96	2438.4
21	533.4	72	1828.8	96	2438.4
24	609.6	72	1828.8	96	2438.4
30	762.0	84	2133.6	108	2743.2
36	914.4	84	2133.6	108	2743.2
42	1066.8	96	2438.4	120	3048.0
48	1219.2	96	2438.4	120	3048.0
54	1371.6	108	2743.2	132	3352.8
60	1524.0	120	3048.0	144	3657.6

NOTES:

1. THE DISTRICT RECOMMENDS CONTRACTOR MEET ALL OF THE REQUIREMENTS ESTABLISHED FOR SAFE TRENCHING. (SEE OSHA AND UOSH REQUIREMENTS, LATEST EDITIONS).

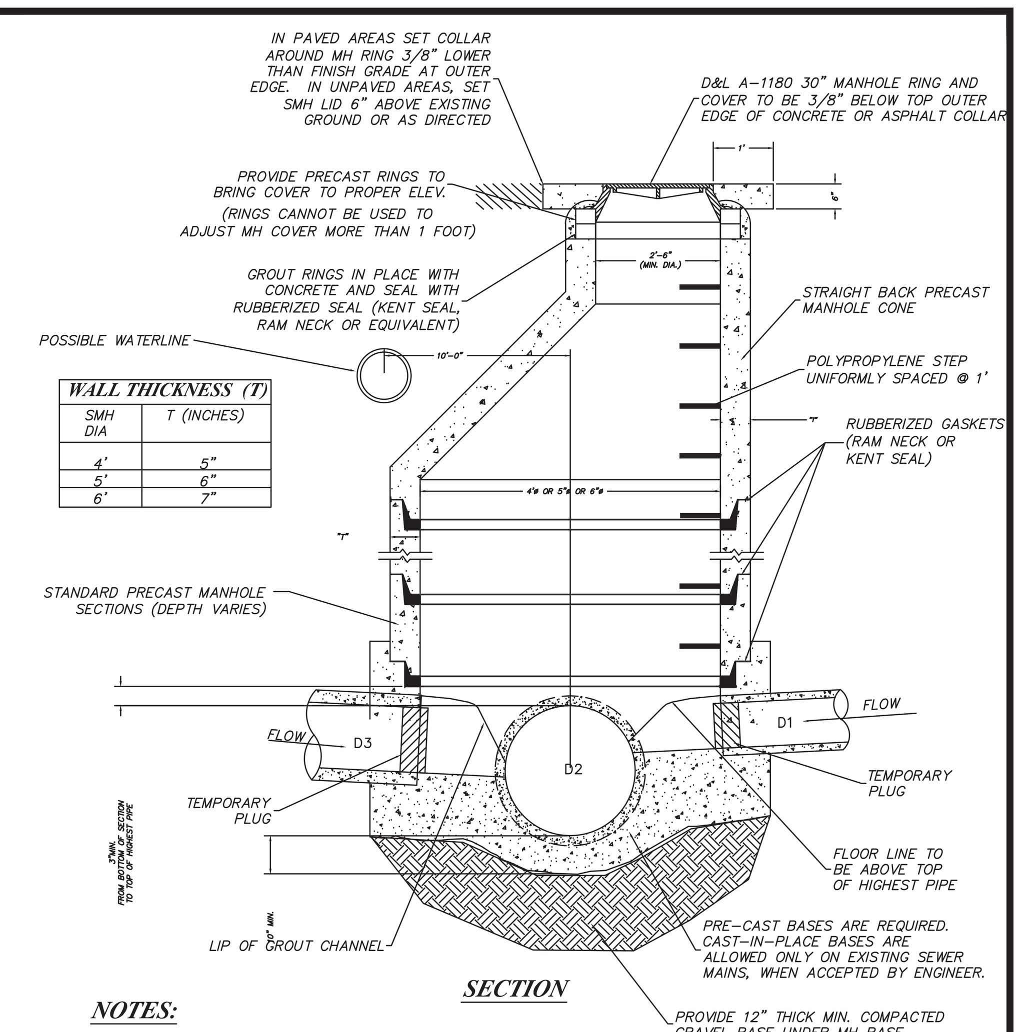
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES BEFORE LAYING PIPE WITHIN 50' OF SAID UTILITIES WHICH MAY BE EXPOSED, DAMAGED OR CROSSED AS SHOWN ON THE DRAWINGS OR AS "BLUE STAKED". THE CONTRACTOR WILL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO MOVE THE UTILITY IF NECESSARY OR OBTAIN PERMISSION FROM THE DISTRICT ENGINEER TO MODIFY GRADE OF PIPELINE IN ORDER TO GO AROUND UTILITIES.

3. TESTING: ALL NEW SANITARY SEWERS TO BE "TELEVISED" AND NECESSARY REPAIRS MADE BEFORE ACCEPTANCE. ALL LINES SHALL BE PRESSURE TESTED TO 3.5 psi MIN. FOR 5 MINUTES. A MANDRAL OR BALL CAN BE USED TO VERIFY DEFORMATION OF A PIPE AS DETERMINED FROM THE VIDEO UNLESS SPECIFIED OTHERWISE.

4. ALL SEWER LINES TO BE INSTALLED IN PUBLIC RIGHT-OF-WAY OR RECORDED SEWER EASEMENT UNLESS OTHERWISE APPROVED BY SALT LAKE COUNTY SEWERAGE IMPROVEMENT DISTRICT No.1.

No Scale

SOUTH VALLEY SEWER DISTRICT — STANDARD SEWER TRENCH DETAIL 1 — NOT TO SCALE — DATE JUNE 98 — FILE NAME STANDARD\SAN~SEW — DRAWING NAME SS-1A



WALL THICKNESS (T)

SMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"

NOTES:

1. IF GRADE ALLOWS, INVERTS OF D1 & D3 SHALL MATCH TOP OF D2. OTHERWISE AS APPROVED BY DISTRICT.
2. AFTER ALL GRADING AROUND MANHOLE HAS BEEN COMPLETED AND FINAL SURFACING IS IN PLACE, REMOVE DEBRIS AND TEMPORARY PLUGS OR PLYWOOD FROM INSIDE OF MANHOLES.
3. IF MANHOLE IS TO BE POURED IN PLACE, FOLLOW SAME PATTERN AS SHOWN EXCEPT USE 10" MIN WALL THICKNESS.
4. MANHOLES DEEPER THAN 20 FEET SHALL HAVE AN 18" THICK CONCRETE BASE.
5. SET MANHOLE FRAME AND COVER TO 3/8" BELOW FINISH GRADE AFTER FINAL STREET GRADING IS COMPLETE.
6. CONE AND WALL SECTIONS TO CONFORM TO ASTM C-478
7. JUNCTIONS OF THREE OR MORE PIPES REQUIRE 5' DIAMETER OR LARGER MANHOLE.
8. DEFLECTION ANGLE OF 75° OR HIGHER REQUIRED 5'ø OR LARGER MANHOLE.

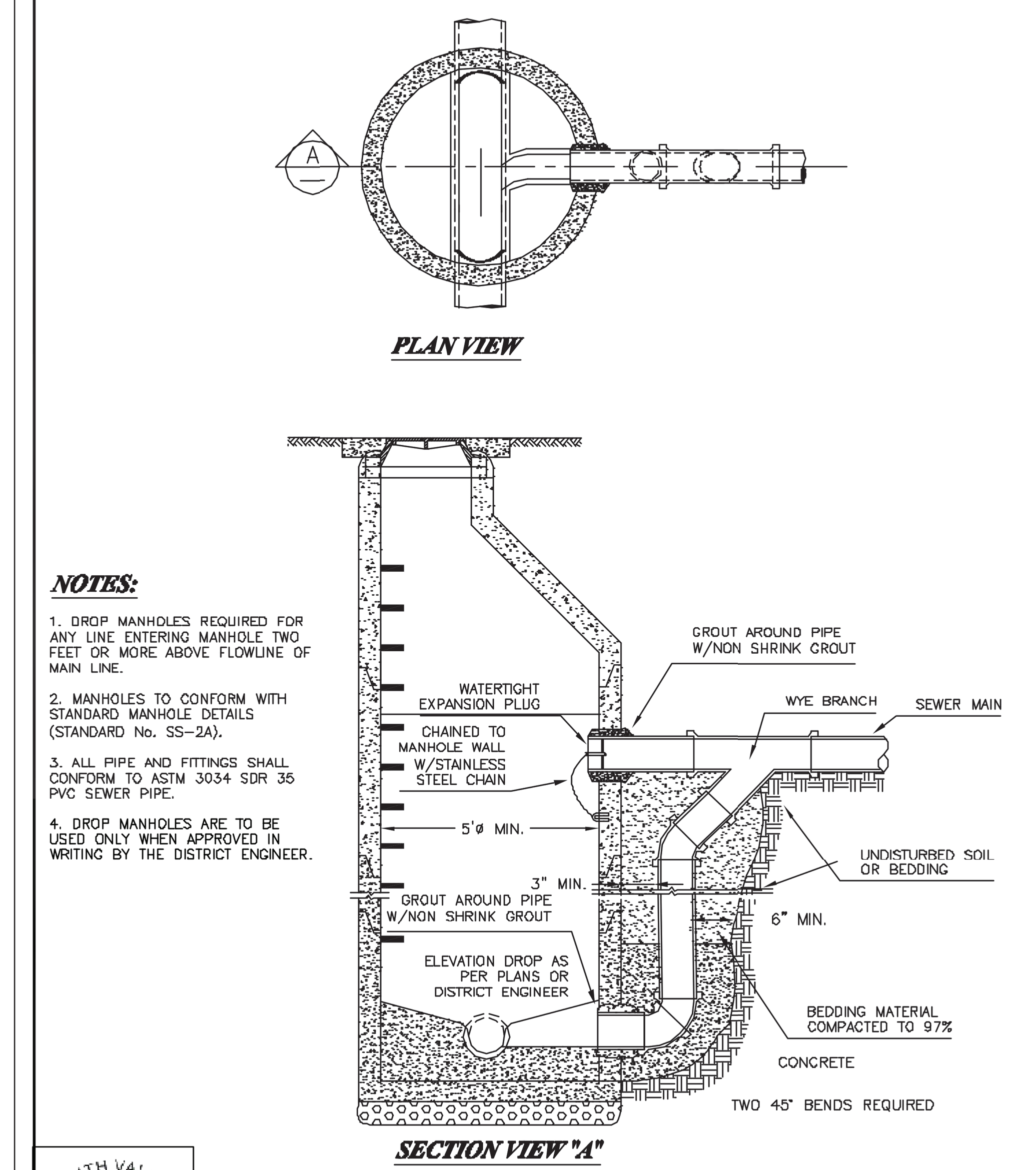
No Scale

SOUTH VALLEY SEWER DISTRICT — STANDARD MANHOLE 2 — NOT TO SCALE — DATE JUNE 98 — FILE NAME STANDARD\SAN~SEW — DRAWING NAME SS-2A

A / VAR SOUTH VALLEY SEWER DISTRICT STANDARD DETAILS

NOT TO SCALE

NOTES:
1. SEE PLANS FOR PIPE SIZES
2. INSTALL SEWER WARNING TAPE 2'-3' ABOVE PIPE



NOTES:

1. DROP MANHOLES REQUIRED FOR ANY LINE ENTERING MANHOLE TWO FEET OR MORE ABOVE FLOWLINE OF MAIN LINE.

2. MANHOLES TO CONFORM WITH STANDARD MANHOLE DETAILS (STANDARD No. SS-2A).

3. ALL PIPE AND FITTINGS SHALL CONFORM TO ASTM 3034 SDR 35 PVC SEWER PIPE.

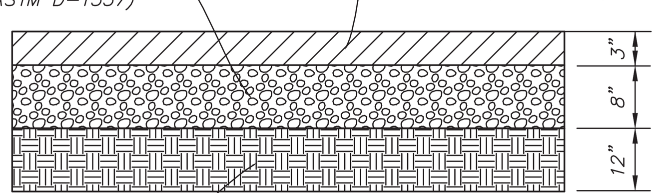
4. DROP MANHOLES ARE TO BE USED ONLY WHEN APPROVED IN WRITING BY THE DISTRICT ENGINEER.

SOUTH VALLEY SEWER DISTRICT — **OUTSIDE DROP MANHOLE** — DATE JUNE 98 — FILE NAME STANDARD\SAN~SEW — DRAWING NAME SS-4A

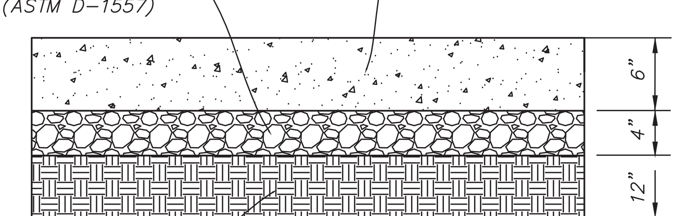
1

E / — DROP MANHOLE DETAIL

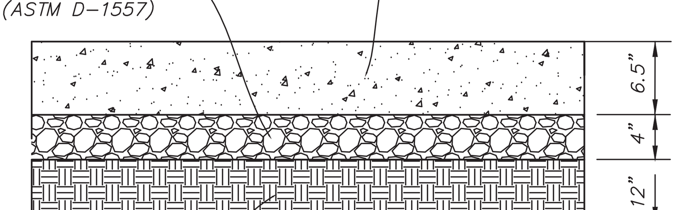
NOT TO SCALE



1 ASPHALT SECTION (NEW)



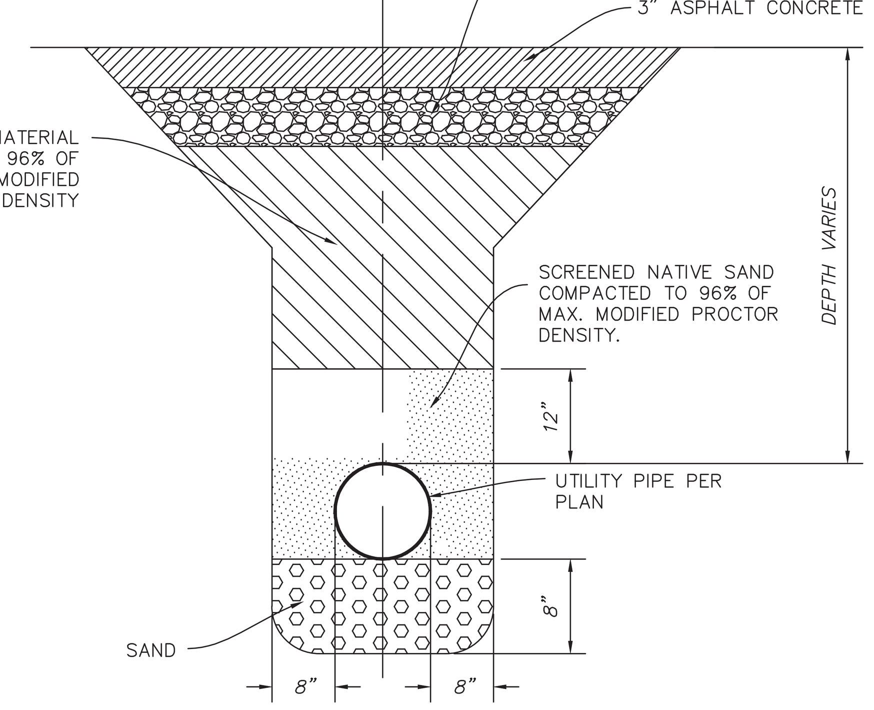
2 CONCRETE DRIVEWAY SECTION (NEW)



3 CONCRETE PAD SECTION (NEW)

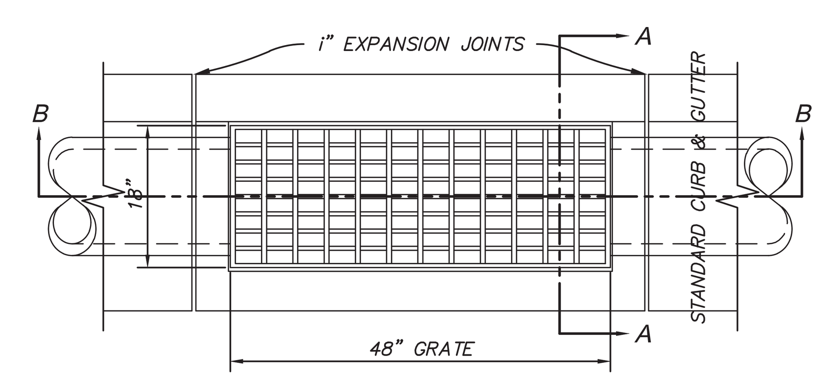
C / — PAVEMENT SECTIONS DETAILS

SCALE: N.T.S.

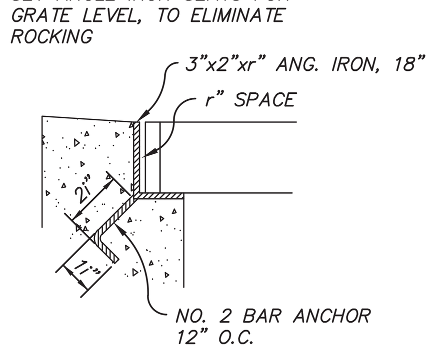


B / — UTILITY TRENCH DETAIL

NOT TO SCALE

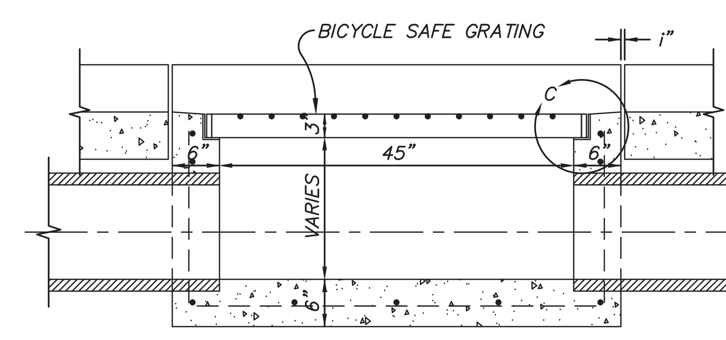


PLAN

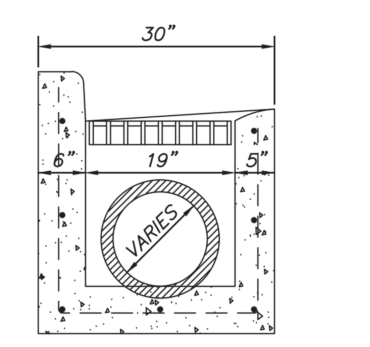


DETAIL C

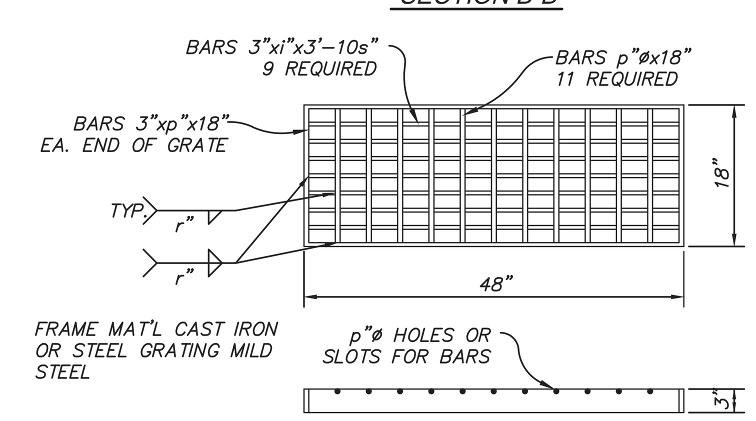
NOTE: SET GRATE r" BELOW FLOW LINE OF GUTTER



SECTION B-B



SECTION A-A



BICYCLE SAFE GRATING DETAIL

NOTE: PIPE LOCATION INTO BOX SHOWN ON THIS PLAN IS PICTORIAL ONLY. PIPE MAY ENTER BOX FROM ANY SIDE AS INDICATED ON CONSTRUCTION PLAN.

NOTE: PIPE SIZE AND DEPTH VARIES.

REINFORCE BOX WITH #4 RODS, 12" O.C. BOTH WAYS AT CENTER OF WALL AND BOTTOM.

NOTE: ON STEEP GRADES WARP CURB FLOW LINE TO PERMIT HORIZONTAL INSTALLATION OF GRATING.

D / — STANDARD CURB TYPE CATCH BASIN

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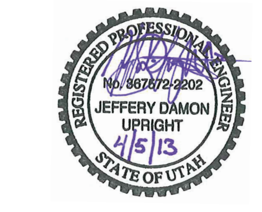

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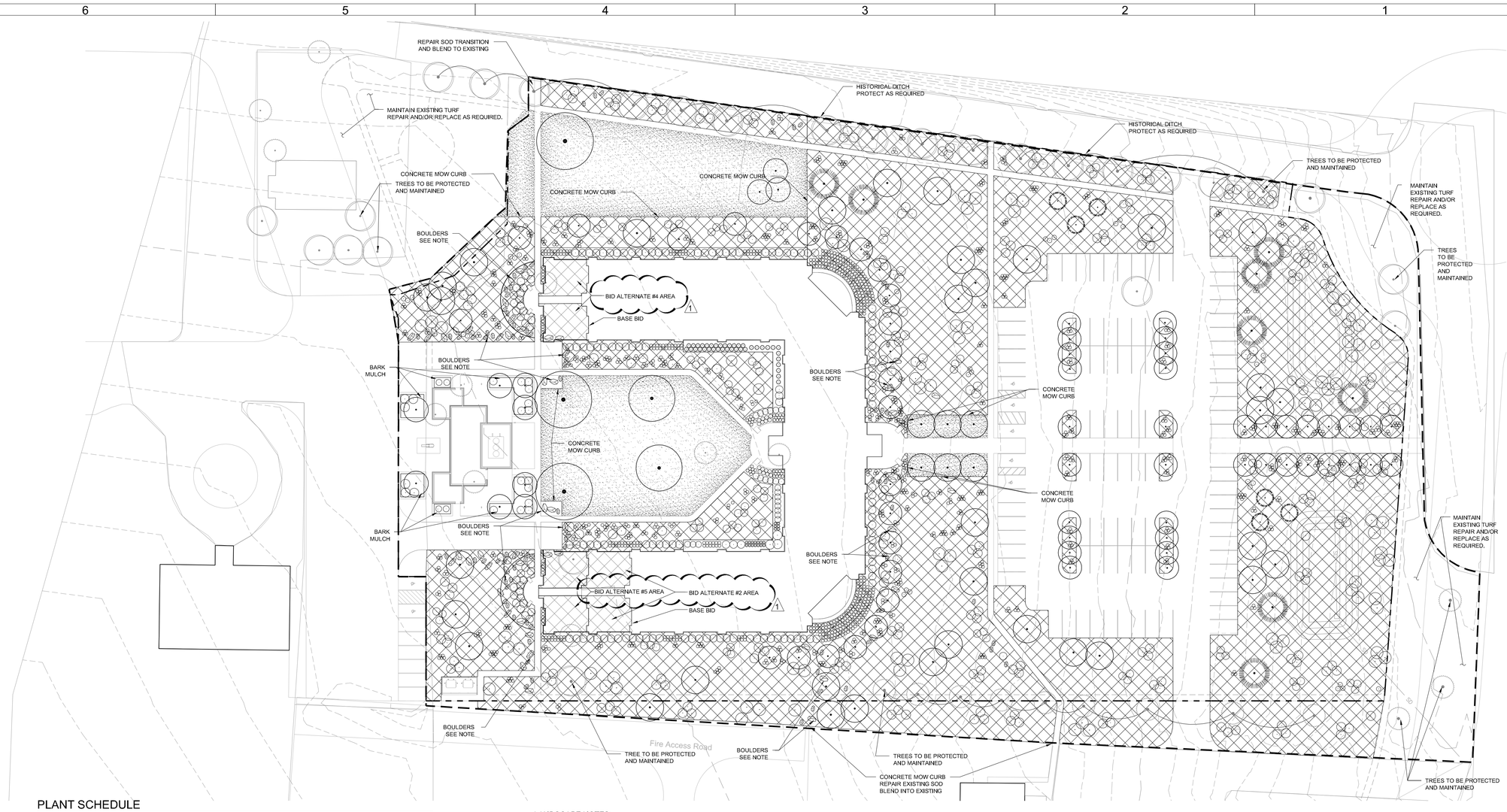
GENERAL DETAILS

#	DATE	BY	DESCRIPTION
1	04/05/2013	JDU	ADDENDUM 3

DRAWN BY: NS — CHECKED BY: JDU
PROJECT NO. 11007 — DRAWING NO. C501
DATE 02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT/SIZE
CC2	6	Crataegus x lavallei 'Carriere'	Carriere Hawthorn	2" Cal.
GS	2	Gleditsia triacanthos inermis 'Shademaster'	Shademaster Locust	2" Cal.
MS2	11	Malus x 'Spring Snow'	Spring Snow Crab Apple	15 gal Tree Form
QM	3	Quercus macrocarpa	Burr Oak	2" Cal.
NATIVE TREES	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT/SIZE**
AG2	15	Acer glabrum	Rocky Mountain Maple	15 gal clump
AG3	20	Acer grandidentatum	Bigtooth Maple	15 gal clump
AG	60	Amelanchier x grandiflora 'Autumn Brilliance'	'Autumn Brilliance' Serviceberry	15 gal Tree Form
PB2	8	Picea pungens	Colorado Spruce	5'
PP	6	Pinus edulis	Pinon Pine	5'
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
BB	14	Buddleja davidii 'Black Knight'	Black Knight Butterfly Bush	5 gal
CP	8	Caragana pygmaea	Pygmy Peashrub	5 gal
FA	9	Forsythia x 'Arnold Dwarf'	Arnold Dwarf Forsythia	5 gal
VD	19	Viburnum dentatum 'Blue Muffin'	Blue Muffin Viburnum	5 gal
GRASSES	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
CA	27	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 gal
MS	12	Miscanthus sinensis 'Adagio'	Adagio Eulalia Grass	1 gal
SS	20	Schizachyrium scoparium	Little Bluestem Grass	1 gal
NATIVE PERENNIAL	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
FW	63	Fragaria vesca	Woodland Strawberry	1 gal
G	57	Geranium viscosissimum	Sticky Geranium	1 gal
MR	745	Mahonia repens	Creeping Mahonia	1 gal
O	103	Penstemon cyananthus	Wasatch penstemon	1 gal
P	115	Penstemon pinifolius 'Mersea Yellow'	Yellow Threadleaf Beardtongue	1 gal
R	127	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black-eyed Susan	1 gal
ZG	87	Zauschneria latifolia 'Garrettii'	Orange Carpet	1 gal
NATIVE SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
AW	35	Artemisia tridentata wyominensis	Wyoming Sagebrush	5 gal
CL	59	Cercocarpus ledifolius	Curl-Leaf Mountain Mahogany	5 gal
CM	3	Cercocarpus montanus	Alderleaf Mountain Mahogany	5 gal
PB3	87	Prunus besseyi	Sand Cherry	5 gal
PP2	120	Prunus besseyi 'Pawnee Buttes'	Sand Cherry	5 gal
RG	119	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	5 gal
RG2	2	Rhus glabra	Smooth Sumac	5 gal
RC	6	Rhus glabra 'Cismontana'	Western Smooth Sumac	5 gal
RA	130	Rosa woodsii	Mountain Rose	5 gal
SE	18	Salix exigua	Coyote Willow	5 gal
PERENNIALS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
A	16	Agastache rupestris 'Sunset'	Sunset Hyssop	1 gal
K	38	Hemerocallis x 'Rosy Returns'	Rosy Returns Daylily	1 gal
SOD/SEED	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
BBG	23,211 sf	Poa pratensis L. 'NE-KYB-05-001'	Bella Bluegrass	sod

1 Landscape Site Treatment Plan
1" = 30'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1 1

LANDSCAPE NOTES:

1. THE LANDSCAPE CONTRACTOR MUST EXAMINE THE SITE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE IN WRITING OF ANY UNSATISFACTORY CONDITIONS. DO NOT PROCEED UNTIL CONDITIONS HAVE BEEN CORRECTED.
2. BEFORE ANY EXCAVATION, HAVE THE UTILITIES LOCATED AND/OR COORDINATE WITH THE GENERAL CONTRACTOR FOR THE LOCATION OF UTILITIES, SLEEVES, CONDUITS, ETC.
3. THE LANDSCAPE CONTRACTOR MUST COORDINATE WITH ALL OTHER ASSOCIATED TRADES TO BEST FACILITATE PROGRESS ON THE JOB.
4. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR FINISH GRADE ELEVATIONS IN LANDSCAPED AREAS. COORDINATE WITH GENERAL CONTRACTOR FOR ROUGH GRADING ELEVATIONS. ALLOW FOR DEPTH OF MULCH OR SOD.
5. ALL PLANT MATERIALS MUST MEET SIZES INDICATED IN SCHEDULES. THE OWNER'S AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO REFUSE PLANT MATERIALS WHICH DO NOT MEET THE QUALITY REQUIRED OF THE PROJECT.
6. ANY PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. CONTRACTOR TO VERIFY ALL PLANT QUANTITIES REQUIRED AND PROVIDE THE PLANTS NECESSARY TO COMPLETE THE PLANTINGS.
7. TOPSOIL IS REQUIRED. 6" MINIMUM DEPTH IN TURF AREAS AND 12" MINIMUM DEPTH IN ALL SHRUB, GROUNDCOVER, ORNAMENTAL GRASS, AND PERENNIAL AREAS.
8. CONTRACTOR TO VERIFY LOCATION OF UTILITY LINES. TREES TO BE PLACED A MINIMUM OF 3 FEET LATERALLY FROM UTILITY LINES WHERE POSSIBLE.
9. ALL HABITAT AREA TO HAVE GEOTEXTILE LANDSCAPE FABRIC AND 3" DEEP STONE MULCH. LANDCAPE PLANTERS AROUND MECHANICAL BUILDING TO HAVE GEOTEXTILE LANDCAPE FABRIC AND 3" BARK MULCH
10. BOULDERS ARE SHOWN SCHEMATICALLY. SIZE AND SHAPE WILL VARY WITH 2 FT MINIMUM DIAMETER EACH. PLACEMENT GUIDELINES - PLACE BOULDERS WITH RANDOM SPACING WITH NO SPACING GREATER THAN 6 FT. BETWEEN BOULDERS. DO NOT PLACE BOULDERS EQUAL DISTANCE FROM EACH OTHER OR IN A STRAIGHT LINES.
11. BOULDERS EXCAVATED DURING DEMOLITION MAY BE USED IF ACCEPTED BY CONTRACTING OFFICER.
12. EXISTING TREES THAT ARE TO REMAIN ARE TO BE PROTECTED AND MAINTAINED. SEE SPECIFICATIONS.

ALTERNATE INFORMATION
DRAWINGS - THE PLANTING AND IRRIGATION PLANS REFLECT THE CONDITIONS WITH ALL ADDITIVE ALTERNATES INCLUDED.

BASE BID - NO LANDSCAPE OR IRRIGATION IS INCLUDED.

ALTERNATE 1- LANDSCAPING AND FLEXIBLE ASPHALT PAVEMENT FOR MAIN PARKING AREA AND ITS ENTRANCES; ALL WORK ASSOCIATED AND IN CONNECTION WITH THE LANDSCAPE SITE TREATMENT, SITE PLANTING, SITE IRRIGATION SYSTEMS NOT INCLUDED WITHIN OTHER PROVISIONS OF THE MAIN BID, AND ALL WORK ASSOCIATED AND IN CONNECTION WITH FURNISHING AND INSTALLING THE TOP FINISH LAYER OF THE FLEXIBLE ASPHALT PAVEMENT FOR THE MAIN PARKING AREA ON THE EAST SIDE OF THE PROJECT INCLUDING ITS ENTRANCES AND MARKING PAINT. ALTERNATE 1 INCLUDES +/- 1,470 ADDITIONAL SQUARE FEET OF LANDSCAPE CONSTRUCTION ON THE NORTH WING AND +/- 2,940 ADDITIONAL SQUARE FEET OF LANDSCAPE ON THE SOUTH WING FROM THAT SHOWN. GRADING, TOPSOIL, LANDSCAPE FABRIC, BOULDERS, PLANTING AND IRRIGATION IS REQUIRED IN THESE AREAS. PLANTS AND IRRIGATION WILL BE RELOCATED FROM THE ADJACENT AREAS.

ALTERNATE 2 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 2 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT).

ALTERNATE 3 - NO LANDSCAPE OR IRRIGATION MODIFICATIONS.

ALTERNATE 4 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 4 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT).

ALTERNATE 5 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 5 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT). 1

LEED RESTORE HABITAT AREA REQUIREMENT CALCULATIONS

REQUIRED RESTORE HABITAT AREA = (LEED AREA - BUILDING AREA) * 50%

- WITH BASE BID
  115,900 SF = (254,935 - 23,136) * 50%
- WITH ALT. #1
  115,900 SF = (254,935 - 23,136) * 50%
- WITH ALT. #2
  115,165 SF = (254,935 - 24,605) * 50%
- WITH ALT. #4
  114,431 SF = (254,935 - 26,074) * 50%
- WITH ALT. #5
  113,696 SF = (254,935 - 27,543) * 50%

1

LANDSCAPE LEGEND

- ASSUMED PROPERTY LINE
- LEED BOUNDARY (254,935 SQ. FT.)
- LEED RESTORE HABITAT AREA (CREDIT 5.1)
  BASE BID = 0 SQ. FT.
  WITH ALT #1 = 127,781 SQ. FT.
  WITH ALT #2 = 126,446 SQ. FT.
  WITH ALT #4 = 125,111 SQ. FT.
  WITH ALT #5 = 123,776 SQ. FT. 1
- TURF GRASS SOD (23,211 SQ. FT.)
- EXISTING EVERGREEN TREE
- EXISTING DECIDUOUS TREE
- PROPOSED TREES AND SHRUBS

0 30 60 90 120 feet
1" = 30'

NORTH

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

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STATE OF UTAH
HUGH HOLT
NO. 106783
LANDSCAPE ARCHITECT
15 FEB 2013

LANDMARK DESIGN
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LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: ldi-ut.com

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Landscape Site Treatment Plan

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt	CHECKED BY: M. Vlasic
PROJECT NO.: 11007	DRAWING NO.: LS101
DATE: 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Robert, Apr 04, 2013 - 5:31pm
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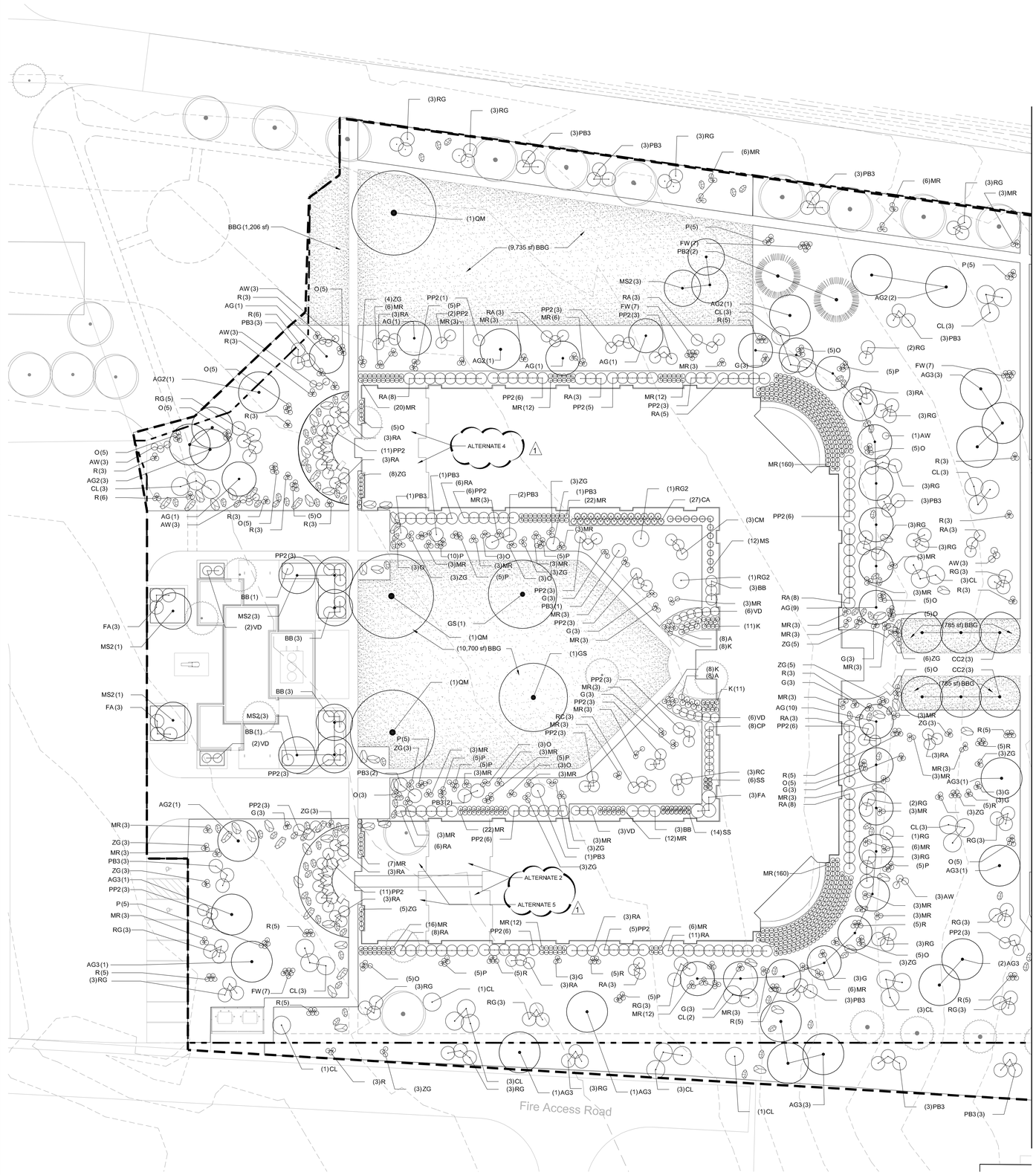

1 Planting Plan - 1
1" = 20'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	CONT/SIZE
CC2	Crataegus x lavallei 'Carriere'	Carriere Hawthorn	2" Cal.
GS	Gleditsia triacanthos inermis 'Shademaster'	Shademaster Locust	2" Cal.
MS2	Malus x 'Spring Snow'	Spring Snow Crab Apple	15 gal Tree Form
QM	Quercus macrocarpa	Burr Oak	2" Cal.
NATIVE TREES	**BOTANICAL NAME**	**COMMON NAME**	**CONT/SIZE**
AG2	Acer glabrum	Rocky Mountain Maple	15 gal clump
AG3	Acer grandidentatum	Bigtooth Maple	15 gal clump
AG	Amelanchier x grandiflora 'Autumn Brilliance'	'Autumn Brilliance' Serviceberry	15 gal Tree Form
PB2	Picea pungens	Colorado Spruce	5'
PP	Pinus edulis	Pinon Pine	5'
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
BB	Buddleja davidii 'Black Knight'	Black Knight Butterfly Bush	5 gal
CP	Caragana pygmaea	Pygmy Peashrub	5 gal
FA	Forsythia x 'Arnold Dwarf'	Arnold Dwarf Forsythia	5 gal
VD	Viburnum dentatum 'Blue Muffin'	Blue Muffin Viburnum	5 gal
GRASSES	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
CA	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 gal
MS	Miscanthus sinensis 'Adagio'	Adagio Eulalia Grass	1 gal
SS	Schizachyrium scoparium	Little Bluestem Grass	1 gal
NATIVE PERENNIAL	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
FW	Fragaria vesca	Woodland Strawberry	1 gal
G	Geranium viscosissimum	Sticky Geranium	1 gal
MR	Mahonia repens	Creeping Mahonia	1 gal
O	Penstemon cyananthus	Wasatch penstemon	1 gal
P	Penstemon pinifolius 'Mersea Yellow'	Yellow Threadleaf Beardtongue	1 gal
R	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black-eyed Susan	1 gal
ZG	Zauschneria latifolia 'Garrettii'	Orange Carpet	1 gal
NATIVE SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
AW	Artemisia tridentata wyominensis	Wyoming Sagebrush	5 gal
CL	Cercocarpus ledifolius	Curl-Leaf Mountain Mahogany	5 gal
CM	Cercocarpus montanus	Alderleaf Mountain Mahogany	5 gal
PB3	Prunus besseyi	Sand Cherry	5 gal
PP2	Prunus besseyi 'Pawnee Buttes'	Sand Cherry	5 gal
RG	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	5 gal
RG2	Rhus glabra	Smooth Sumac	5 gal
RC	Rhus glabra 'Cismontana'	Western Smooth Sumac	5 gal
RA	Rosa woodsii	Mountain Rose	5 gal
SE	Salix exigua	Coyote Willow	5 gal
PERENNIALS	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
A	Agastache rupestris 'Sunset'	Sunset Hyssop	1 gal
K	Hemerocallis x 'Rosy Returns'	Rosy Returns Daylily	1 gal
SOD/SEED	**BOTANICAL NAME**	**COMMON NAME**	**CONT**
BBG	Poa pratensis L. 'NE-KYB-05-001'	Bella Bluegrass	sod

0 20 40 60 80 feet
1" = 20'

NORTH

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LICENSED LANDSCAPE ARCHITECT
15 FEB 2013

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LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: ldi-ut.com

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Planting Plan - 1

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt
CHECKED BY: M. Vlasic
PROJECT NO.: 11007
DRAWING NO.: LS102
DATE: 02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

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PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	CONT/SIZE
CC2	Crataegus x lavallei 'Carriere'	Carriere Hawthorn	2" Cal.
GS	Gleditsia triacanthos inermis 'Shademaster'	Shademaster Locust	2" Cal.
MS2	Malus x 'Spring Snow'	Spring Snow Crab Apple	15 gal Tree Form
QM	Quercus macrocarpa	Burr Oak	2" Cal.

NATIVE TREES	BOTANICAL NAME	COMMON NAME	CONT/SIZE
AG2	Acer glabrum	Rocky Mountain Maple	15 gal clump
AG3	Acer grandidentatum	Bigtooth Maple	15 gal clump
AG	Amelanchier x grandiflora 'Autumn Brilliance'	'Autumn Brilliance' Serviceberry	15 gal Tree Form
PB2	Picea pungens	Colorado Spruce	5'
PP	Pinus edulis	Pinon Pine	5'

SHRUBS	BOTANICAL NAME	COMMON NAME	CONT
BB	Buddleja davidii 'Black Knight'	Black Knight Butterfly Bush	5 gal
CP	Caragana pygmaea	Pygmy Peashrub	5 gal
FA	Forsythia x 'Arnold Dwarf'	Arnold Dwarf Forsythia	5 gal
VD	Viburnum dentatum 'Blue Muffin'	Blue Muffin Viburnum	5 gal

GRASSES	BOTANICAL NAME	COMMON NAME	CONT
CA	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 gal
MS	Miscanthus sinensis 'Adagio'	Adagio Eulalia Grass	1 gal
SS	Schizachyrium scoparium	Little Bluestem Grass	1 gal

NATIVE PERENNIAL	BOTANICAL NAME	COMMON NAME	CONT
FW	Fragaria vesca	Woodland Strawberry	1 gal
G	Geranium viscosissimum	Sticky Geranium	1 gal
MR	Mahonia repens	Creeping Mahonia	1 gal
O	Penstemon cyananthus	Wasatch penstemon	1 gal
P	Penstemon pinifolius 'Mersea Yellow'	Yellow Threadleaf Beardtongue	1 gal
R	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black-eyed Susan	1 gal
ZG	Zauschneria latifolia 'Garrettii'	Orange Carpet	1 gal

NATIVE SHRUBS	BOTANICAL NAME	COMMON NAME	CONT
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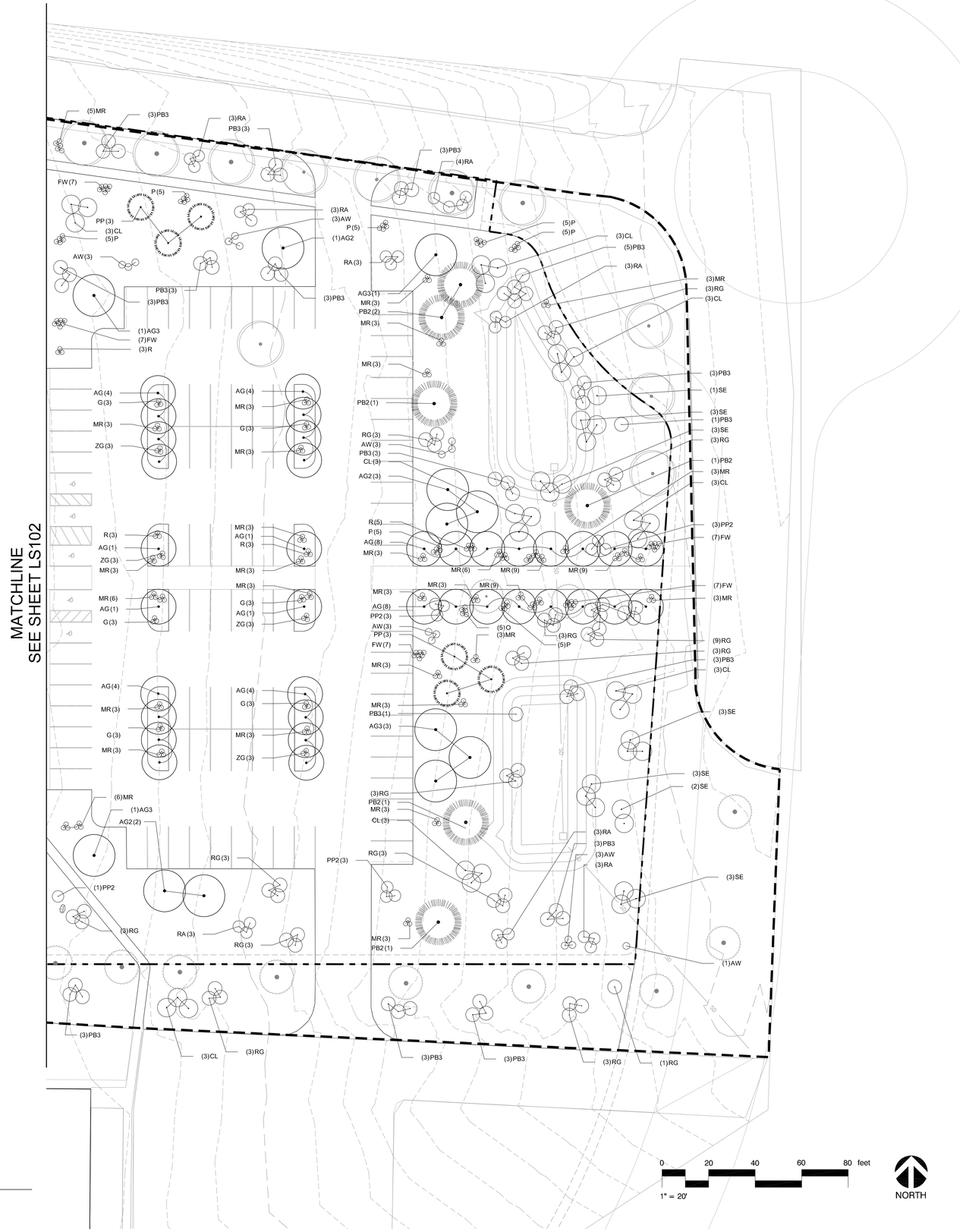
PP2	Prunus besseyi 'Pawnee Buttes'	Sand Cherry	5 gal
RG	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	5 gal
RG2	Rhus glabra	Smooth Sumac	5 gal
RC	Rhus glabra 'Cismontana'	Western Smooth Sumac	5 gal
RA	Rosa woodsii	Mountain Rose	5 gal
SE	Salix exigua	Coyote Willow	5 gal

PERENNIALS	BOTANICAL NAME	COMMON NAME	CONT
A	Agastache rupestris 'Sunset'	Sunset Hyssop	1 gal
K	Hemerocallis x 'Rosy Returns'	Rosy Returns Daylily	1 gal

SOD/SEED	BOTANICAL NAME	COMMON NAME	CONT
BBG	Poa pratensis L. 'NE-KYB-05-001'	Bella Bluegrass	sod



1 Planting Plan - 2
1" = 20'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
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STATE OF UTAH · HUGH HOLT · NO. 106783 · LICENSED LANDSCAPE ARCHITECT · 15 FEB 2013

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CAMP WILLIAMS
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QUARTERS
RIVERTON, UT 84065

Planting Plan - 2

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt	CHECKED BY: M. Vlasic
PROJECT NO.: 11007	DRAWING NO.: LS103
DATE: 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Robert, Apr 04, 2013 - 5:32pm
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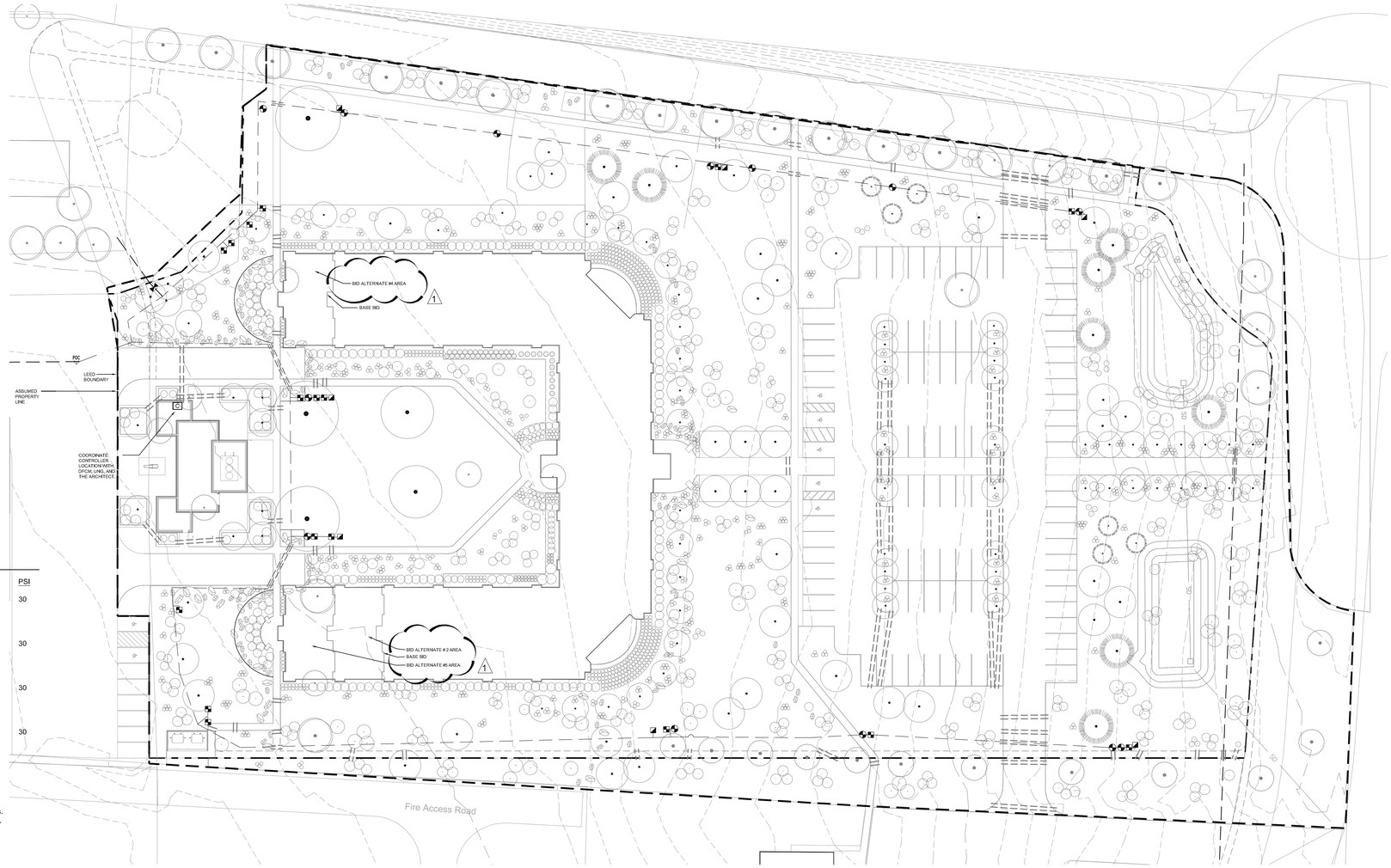

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
M O	Hunter MP1000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with check valve, MP Rotator nozzle. M=Maroon adj arc 90 to 210, L=Light Blue 210 to 270 arc, O=Olive 360 arc, on pop-up body.	30
K G R	Hunter MP2000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc, on pop-up body.	30
B Y A	Hunter MP3000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc, on pop-up body.	30
LST RST SST	Hunter MP Strip w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. LST=Ivory left strip, SST=Brown side strip, RST=Copper right strip, on pop-up body.	30

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird XCZ-100-PRB-LC Medium Plus Flow Drip Control Kit, for Light Commercial Uses. 1" PGA Valve, with 1" Pressure Regulating 40psi Basket Filter. 5gpm to 20gpm.
	Shrub Drip Emitter Line Drip Emiter Loop (2.6 GPH)
	Existing Tree Root Watering Bubblers 5 Root Watering Bubblers 7' from trunk of Existing Tree (2.5 GPM per tree)
	Tree Root Watering Bubblers 3 Root Watering Bubblers per Tree (1.5 GPM per tree)
	Irrigation Turf Head (Relocated) Adjust as required to provide coverage. X = Approximate existing location.
	Area to Receive Dripline Netafim TLCV-04-18 (18) Techline Pressure Compensating Landscape Dripline with Check Valve. 0.4GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. 17mm.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird PGA-PRS-D- Globe 1", 1-1/2", 2" Electric Remote Control Valve, Globe. With Pressure Regulator Module.
	Rain Bird 44RC 1" Quick Coupler Valve, two piece body
	Shut Off Valve 2" Stop and Waste Valve
C	Rain Bird ESPLXM Rain Bird ESP-LX Modular Series. Modular controller up to 32 stations maximum with ESPLXMSM4- 4 station and ESPLXMSM8- 8 station modules. Install the proper number of modules to accomodate the number of stations in the scope of work.
	Irrigation Lateral Line: PVC Schedule 40 PVC Schedule 40 irrigation pipe.
	Irrigation Mainline: PVC Schedule 40
	Irrigation Mainline: PVC Class 200 SDR 21 PVC Class 200 irrigation pipe.
	Pipe Sleeve: PVC Schedule 40 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction.

Valve Callout
- # — Valve Number
- # — Valve Flow
- #" — Valve Size

1 Landscape Site Plan
1" = 30'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1 1

GENERAL IRRIGATION SITE PLAN NOTES

1. THE IRRIGATION CONTRACTOR MUST EXAMINE THE SITE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE IN WRITING OF UNSATISFACTORY CONDITIONS. DO NOT PROCEED UNTIL CONDITIONS HAVE BEEN CORRECTED.
2. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO BE FAMILIAR WITH ALL GRADE DIFFERENCES. LOCATION OF WALKS, WALLS, STRUCTURES, AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL REPAIR OR REPLACE ALL ITEMS DAMAGED BY THE WORK PERFORMED.
3. BEFORE ANY TRENCHING, EXCAVATION OR DIGGING FOR ANY REASON THE CONTRACTOR SHALL HAVE THE UTILITIES IN THE AREA LOCATED, THE CONTRACTOR WILL CONDUCT THE WORK IN SUCH A MANNER TO PROTECT ALL UTILITIES FROM DAMAGES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE ANY DAMAGE AT NO EXPENSE TO THE OWNER.
4. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES, OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
5. ALL COORDINATION WITH THE OWNER AND END USER MUST BE THROUGH THE GENERAL CONTRACTOR.
6. THE IRRIGATION SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE AT THE POINT OF CONNECTION OF APPROXIMATELY 90 PSI. THE IRRIGATION CONTRACTOR WILL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCES BETWEEN THE PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION (P.O.C.) TO THE ARCHITECT.
7. ALL IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
8. ALL MAIN LINES AND LATERAL LINES TO BE PVC SCH 40. THE INTENT IS TO CONNECT TO THE EXISTING MAINLINE AT ONE LOCATION. ONE IRRIGATION MAINLINE CROSSES THE EAST SIDE OF THE PROJECT AND SERVES OTHER LOCATIONS OUTSIDE OF THE PROJECT AREA. ANY DISRUPTION TO THE MAINLINES MUST BE COORDINATED FOR TIMES WHEN THE AREAS OUTSIDE OF THE PROJECT WILL NOT HAVE REQUIRED IRRIGATION WATER. COORDINATE WITH THE OWNER'S AUTHORIZED REPRESENTATIVE.
9. MAIN AND LATERAL LINES SHOWN ON PLANS ARE DIAGRAMMATIC ONLY. ALL PIPES SHALL BE LAIN IN COMMON TRENCHES AND LANDSCAPED AREAS WHEN FEASIBLE.
10. CONTROL WIRES NOT LAIN IN A COMMON TRENCH WITH MAINLINE SHALL BE INSTALLED IN CONDUIT OF SUFFICIENT SIZE. CONTROL WIRES TO BE PLACED IN SEPARATE SLEEVE FROM IRRIGATION LINES. ALL CONTROL WIRES TO BE LABELED WITH ZONE NUMBER AT CONTROLLER AND VALVE.
11. THE IRRIGATION CONTRACTOR SHALL SUPPLY THE OWNER'S AUTHORIZED REPRESENTATIVE AT FINAL INSPECTION WITH COMPLETE 'RED LINE DRAWINGS', WRITTEN START-UP AND SHUT-DOWN PROCEDURES, A COMPLETE MATERIALS LIST, AS WELL AS NAMES, ADDRESSES, AND PHONE NUMBERS OF THE CONTRACTORS AND LOCAL DISTRIBUTORS OF THE VARIOUS MATERIALS USED.
12. THE IRRIGATION CONTRACTOR SHALL MAKE THE ELECTRICAL CONNECTION FROM THE NEW VALVES TO THE CONTROLLER. IRRIGATION RUN TIMES SHALL BE SET BY THE CONTRACTOR.
13. VERIFY LOCATION OF CONTROLLER AND SLEEVES WITH OWNER.
14. REPAIR AREAS DISTURBED BY IRRIGATION MODIFICATION WORK INCLUDING SIDEWALKS,TRENCHES, SITE EQUIPMENT, EXISTING LANDSCAPE, ETC.
15. INFORMATION OF EXISTING IRRIGATION SYSTEM IS BASED ON UTILITY DRAWINGS, OWNER'S KNOWLEDGE AND SITE OBSERVATION. CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT AND SYSTEMS TO ADJUST ACCORDINGLY.
16. SALVAGE EXISTING HEADS, VALVES, AND CONTROLLERS TO THE OWNER.

ALTERNATE INFORMATION
DRAWINGS - THE PLANTING AND IRRIGATION PLANS REFLECT THE CONDITIONS WITH ALL ADDITIVE ALTERNATES INCLUDED.

BASE BID - NO LANDSCAPE OR IRRIGATION IS INCLUDED.

ALTERNATE 1- LANDSCAPING AND FLEXIBLE ASPHALT PAVEMENT FOR MAIN PARKING AREA AND ITS ENTRANCES: ALL WORK ASSOCIATED AND IN CONNECTION WITH THE LANDSCAPE SITE TREATMENT, SITE PLANTING, SITE IRRIGATION SYSTEMS NOT INCLUDED WITHIN OTHER PROVISIONS OF THE MAIN BID, AND ALL WORK ASSOCIATED AND IN CONNECTION WITH FURNISHING AND INSTALLING THE TOP FINISH LAYER OF THE FLEXIBLE ASPHALT PAVEMENT FOR THE MAIN PARKING AREA ON THE EAST SIDE OF THE PROJECT INCLUDING ITS ENTRANCES AND MARKING PAINT. ALTERNATE 1 INCLUDES +/- 1,470 ADDITIONAL SQUARE FEET OF LANDSCAPE CONSTRUCTION ON THE NORTH WING AND +/- 2,940 ADDITIONAL SQUARE FEET OF LANDSCAPE ON THE SOUTH WING FROM THAT SHOWN. GRADING, TOPSOIL, LANDSCAPE FABRIC, BOULDERS, PLANTING AND IRRIGATION IS REQUIRED IN THESE AREAS. PLANTS AND IRRIGATION WILL BE RELOCATED FROM THE ADJACENT AREAS.

ALTERNATE 2 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 2 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT).

ALTERNATE 3 - NO LANDSCAPE OR IRRIGATION MODIFICATIONS.

ALTERNATE 4 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 4 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT).

ALTERNATE 5 - BUILDING ELEMENTS, EQUIPMENT SYSTEMS, ETC FOR TWELVE BILLET UNITS. IF ALTERNATE 5 IS ACCEPTED, THE TOPSOIL, LANDSCAPE FABRIC, AND MULCH WILL BE ELIMINATED AND THE PLANTING, AND IRRIGATION WILL BE RELOCATED (+/- 1,470 SQ FT). 1

0 30 60 90 120 feet
1" = 30'

NORTH

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265 EAST 100 SOUTH SUITE 350
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801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE.

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BUILDING OFFICIAL APPROVAL

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CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Irrigation Site Plan

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt	CHECKED BY: M. Vlasic
PROJECT NO.: 11007	DRAWING NO.: LS201
DATE: 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Roger, Apr 04, 2013 – 3:32pm
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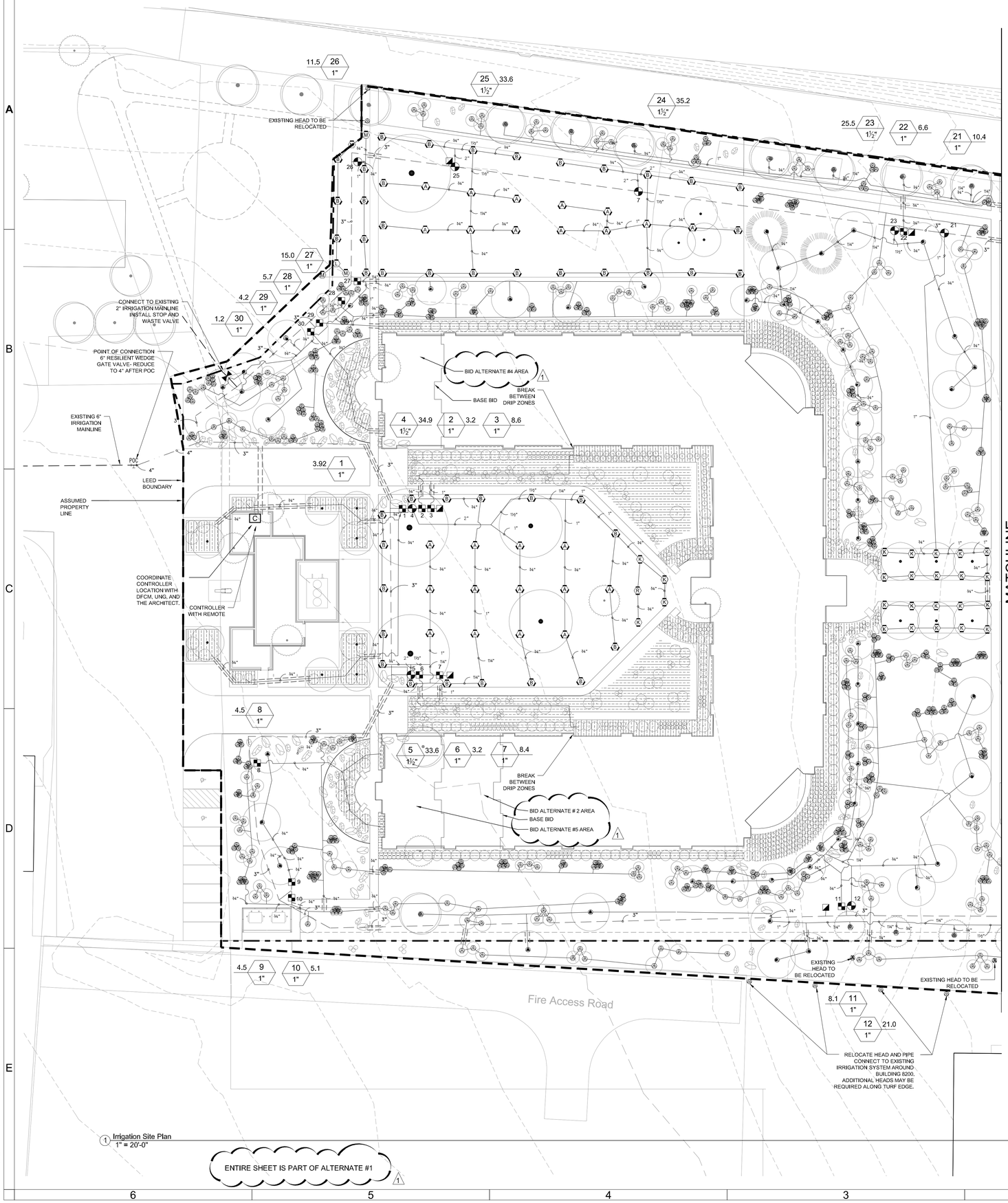

1 Irrigation Site Plan
1" = 20'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
M O	Hunter MP1000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with check valve, MP Rotator nozzle. M=Maroon adj arc 90 to 210, L=Light Blue 210 to 270 arc, O=Olive 360 arc, on pop-up body.	30
K G R	Hunter MP2000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc, on pop-up body.	30
B Y A	Hunter MP3000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc, on pop-up body.	30
LST RST SST	Hunter MP Strip w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. LST=Ivory left strip, SST=Brown side strip, RST=Copper right strip, on pop-up body.	30

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird XCZ-100-PRB-LC Medium Plus Flow Drip Control Kit, for Light Commercial Uses. 1" PGA Valve, with 1" Pressure Regulating 40psi Basket Filter. 5gpm to 20gpm.
	Shrub Drip Emitter Line Drip Emiter Loop (2.6 GPH)
	Existing Tree Root Watering Bubblers 5 Root Watering Bubblers 7' from trunk of Existing Tree (2.5 GPM per tree)
	Tree Root Watering Bubblers 3 Root Watering Bubblers per Tree (1.5 GPM per tree)
	Irrigation Turf Head (Relocated) Adjust as required to provide coverage. X = Approximate existing location.
	Area to Receive Dripline Netafim TLCV-04-18 (18) Techline Pressure Compensating Landscape Dripline with Check Valve. 0.4GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. 17mm.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird PGA-PRS-D- Globe 1", 1-1/2", 2" Electric Remote Control Valve, Globe. With Pressure Regulator Module.
	Rain Bird 44RC 1" Quick Coupler Valve, two piece body
	Shut Off Valve 2" Stop and Waste Valve
C	Rain Bird ESPLXM Rain Bird ESP-LX Modular Series. Modular controller up to 32 stations maximum with ESPLXMSM4- 4 station and ESPLXMSM8- 8 station modules. Install the proper number of modules to accomodate the number of stations in the scope of work.
	Irrigation Lateral Line: PVC Schedule 40 PVC Schedule 40 irrigation pipe.
	Irrigation Mainline: PVC Schedule 40
	Irrigation Mainline: PVC Class 200 SDR 21 PVC Class 200 irrigation pipe.
	Pipe Sleeve: PVC Schedule 40 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction.

Valve Callout
- Valve Number
- Valve Flow
- Valve Size

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LICENSED LANDSCAPE ARCHITECT 15 FEB 2013

LANDMARK DESIGN INCORPORATED
LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: ldi-ut.com

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Irrigation Site Plan

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt	CHECKED BY: M. Vlasic
PROJECT NO. 11007	DRAWING NO. LS202
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Robert, Apr 04, 2013 - 3:34pm
P:\PROJECTS\LCDRNOT\CAMPWILLIAMS_BEQ_JAN2013\3 CD INFO\UNGBEQ4-LS201IRR.dwg

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
M O	Hunter MP1000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with check valve, MP Rotator nozzle. M=Maroon adj arc 90 to 210, L=Light Blue 210 to 270 arc, O=Olive 360 arc, on pop-up body.	30
K G R	Hunter MP2000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc, on pop-up body.	30
B Y A	Hunter MP3000 w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc, on pop-up body.	30
LST RST SST	Hunter MP Strip w/ Rain Bird 1804 PRS SAM Turf Rotator, 4" pop-up with factory installed check valve, MP Rotator nozzle. LST=Ivory left strip, SST=Brown side strip, RST=Copper right strip, on pop-up body.	30

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird XCZ-100-PRB-LC Medium Plus Flow Drip Control Kit, for Light Commercial Uses. 1" PGA Valve, with 1" Pressure Regulating 40psi Basket Filter. 5gpm to 20gpm.
	Shrub Drip Emitter Line Drip Emiter Loop (2.6 GPH)
	Existing Tree Root Watering Bubblers 5 Root Watering Bubblers 7' from trunk of Existing Tree (2.5 GPM per tree)
	Tree Root Watering Bubblers 3 Root Watering Bubblers per Tree (1.5 GPM per tree)
	Irrigation Turf Head (Relocated) Adjust as required to provide coverage. X = Approximate existing location.
	Area to Receive Dripline Netafim TLCV-04-18 (18) Techline Pressure Compensating Landscape Dripline with Check Valve. 0.4GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. 17mm.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
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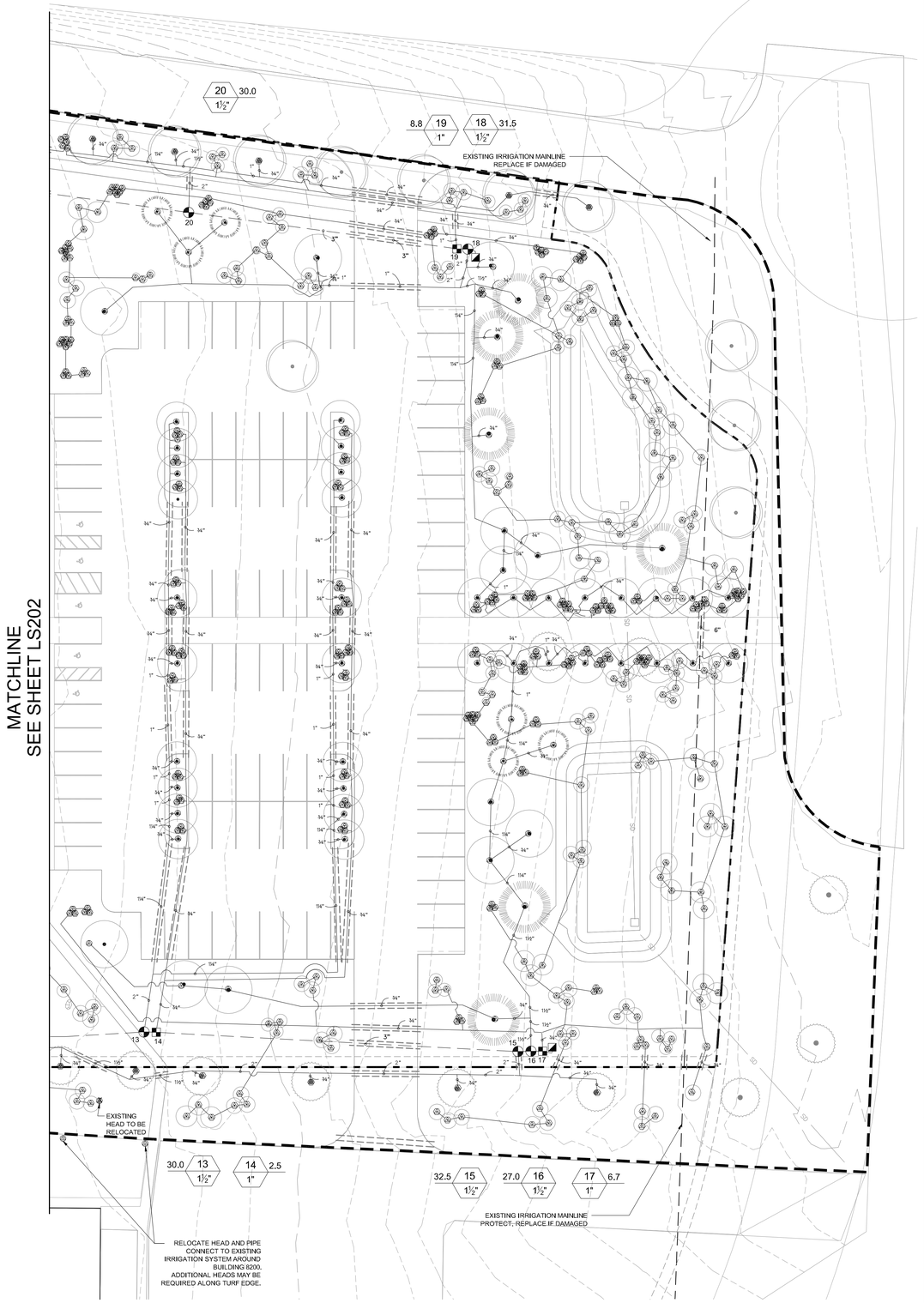
	Rain Bird 44RC 1" Quick Coupler Valve, two piece body
	Shut Off Valve 2" Stop and Waste Valve
C	Rain Bird ESPLXM Rain Bird ESP-LX Modular Series. Modular controller up to 32 stations maximum with ESPLXMSM4- 4 station and ESPLXMSM8- 8 station modules. Install the proper number of modules to accomodate the number of stations in the scope of work.
	Irrigation Lateral Line: PVC Schedule 40 PVC Schedule 40 irrigation pipe.
	Irrigation Mainline: PVC Schedule 40
	Irrigation Mainline: PVC Class 200 SDR 21 PVC Class 200 irrigation pipe.
	Pipe Sleeve: PVC Schedule 40 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction.

Valve Callout
- Valve Number
- Valve Flow
- Valve Size



1 Irrigation Site Plan
1" = 20'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1 1

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LICENSED LANDSCAPE ARCHITECT 15 FEB 2013

LANDMARK DESIGN INCORPORATED
LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: lds-ut.com

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Irrigation Site Plan

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt	CHECKED BY: M. Vlasic
PROJECT NO. 11007	DRAWING NO. LS203
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Robert, Apr 04, 2013 – 3:32pm
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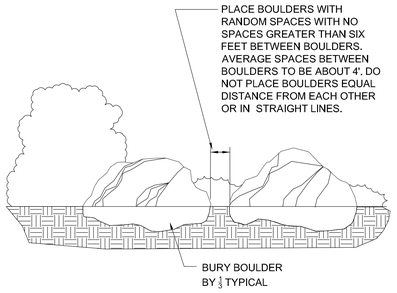
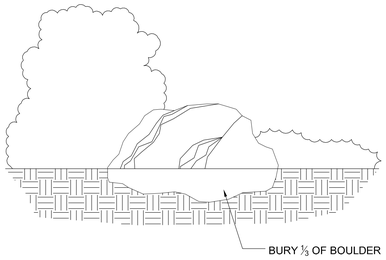


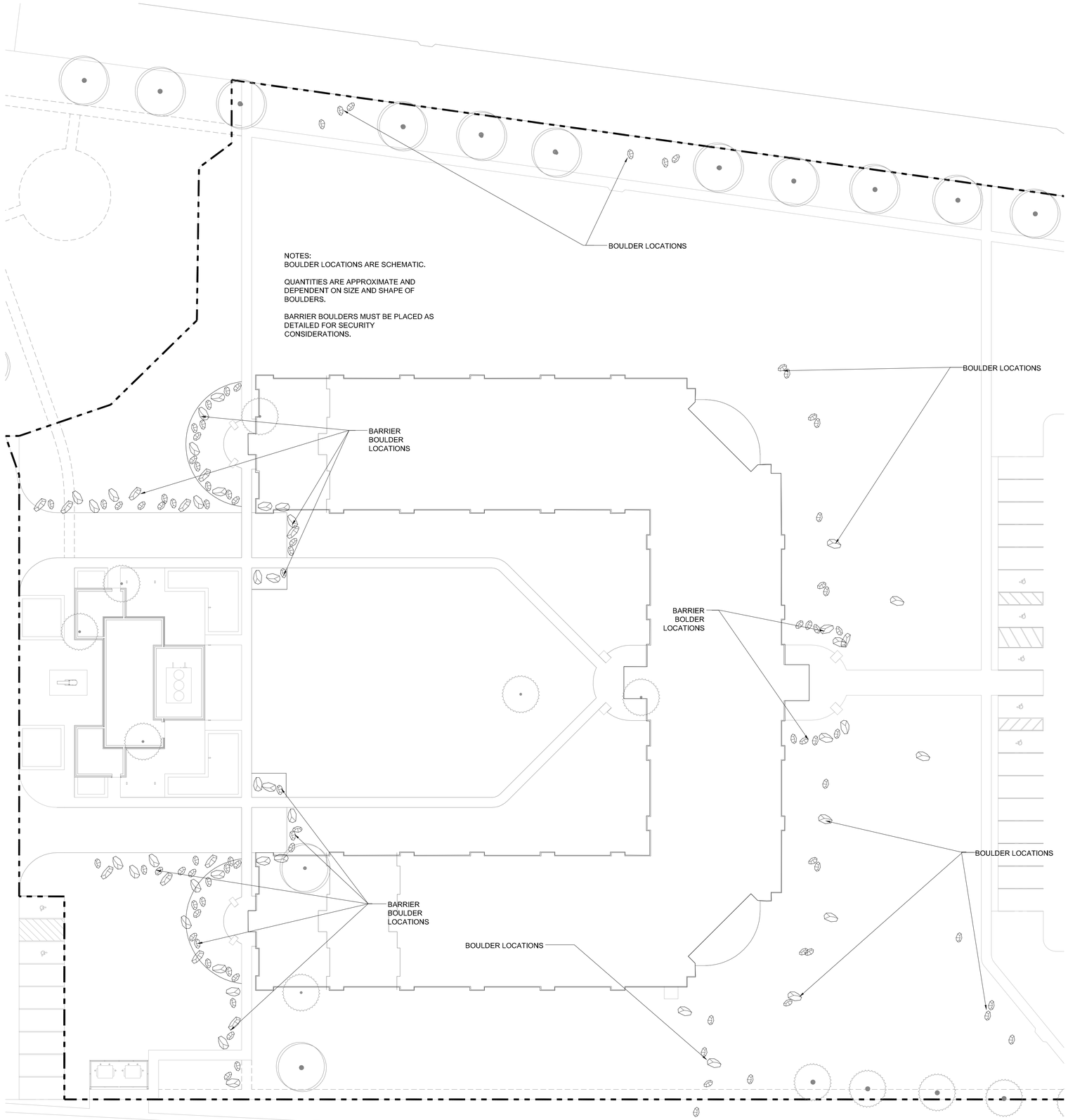
1 BARRIER BOULDER DETAIL

321901-03



2 BOULDER DETAIL

321901-04



NOTES:
BOULDER LOCATIONS ARE SCHEMATIC.

QUANTITIES ARE APPROXIMATE AND DEPENDENT ON SIZE AND SHAPE OF BOULDERS.

BARRIER BOULDERS MUST BE PLACED AS DETAILED FOR SECURITY CONSIDERATIONS.

BOULDER SCHEMATIC PLAN
(NO SCALE)

ENTIRE SHEET IS PART OF ALTERNATE #1 1

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LICENSED LANDSCAPE ARCHITECT 15 FEB 2013

LANDMARK DESIGN
INCORPORATED
LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
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BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Landscape Details

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY H. Holt	CHECKED BY M. Vlasic
PROJECT NO. 11007	DRAWING NO. LS501
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

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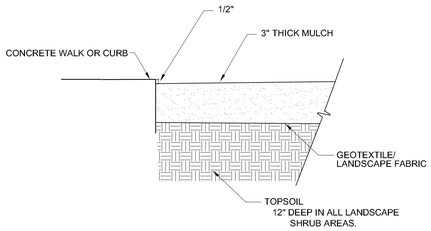
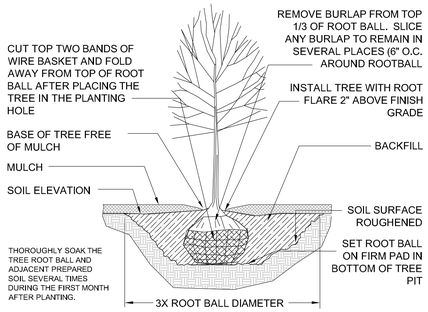


1 MULCH AT CONCRETE EDGE

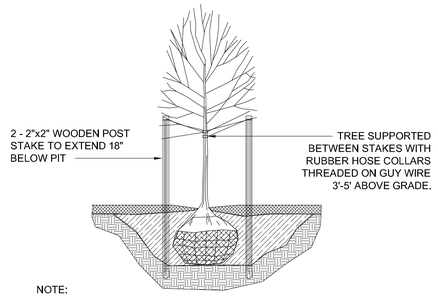
321543-04



STAKING TREES
1. STAKING IS NOT GENERALLY REQUIRED FOR ALL TREE PLANTING. IF CONDITIONS ARE PRESENT WHERE THE CONTRACTOR DEEMS IT NECESSARY TO STAKE TREES TO ENSURE VIABILITY THROUGH THE GUARANTEE PERIOD, THE CONTRACTOR MAY STAKE THE TREES AT NO ADDITIONAL COST TO THE OWNER.
2. ANY STAKING WILL BE IN ACCORDANCE WITH CURRANT HORTICULTURE PRACTICE. STAKING OF TREES WILL BE WITH WOODEN STAKES PLACED OUTSIDE OF THE ROOT BALL

2 DECIDUOUS TREE PLANTING

LDI-329343.01-09



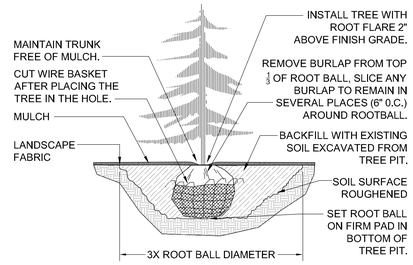
NOTE:

ANY STAKING WILL BE IN ACCORDANCE WITH CURRANT HORTICULTURE PRACTICE. STAKING OF TREES WILL BE WITH WOODEN STAKES PLACED OUTSIDE OF THE ROOT BALL

SEE DETAILS FOR TREE PLANTING

3 TREE STAKING (DECIDUOUS)

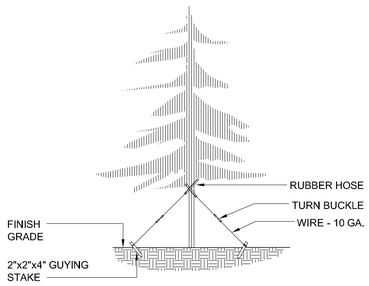
329343.01-03



NOTE:
1. STAKING IS NOT GENERALLY REQUIRED. FOR ALL TREE PLANTING, IF CONDITIONS ARE PRESENT WHERE THE CONTRACTOR DEEMS IT NECESSARY TO STAKE TREES IN ORDER TO ENSURE VIABILITY THORUGH THE GUARANTEE PERIOD, THE CONTRACTOR MAY STAKE THE TREES AT NO ADDITIONAL COST TO THE OWNER.
2. STAKING WILL BE IN ACCORDANCE WITH CURRANT HORTICULTURE PRACTICE. STAKING OF TREES WILL BE WITH WOODEN STAKES PLACED OUTSIDE OF THE ROOT BALL.

4 EVERGREEN TREE PLANTING

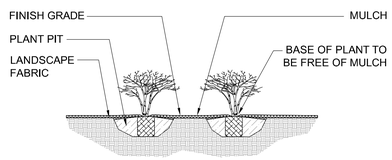
LDI-329343.01-06



NOTE:
1. STAKING WILL BE IN ACCORDANCE WITH CURRANT HORTICULTURE PRACTICE. STAKING OF TREES WILL BE WITH WOODEN STAKES PLACED OUTSIDE OF THE ROOT BALL.
2. THREE EQUALLY SPACED WIRES ARE TO BE USED IN GUYING.
3. ALL TREE STAKING SHALL BE INCLUDED.
4. SEE DETAILS FOR TREE PLANTING.

5 TREE GUYING (EVERGREEN)

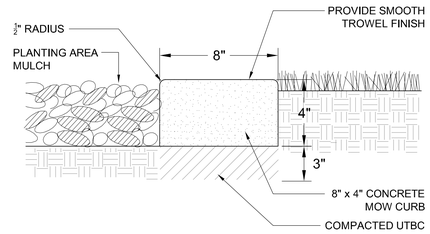
329343.01-04



SOAK TOPSOIL AND ALLOW TO PERCOLATE PRIOR TO PLANTING. SET PLANT AT SAME RELATIONSHIP TO FINISH GRADE AS IN CONTAINER.

6 SHRUB PLANTING

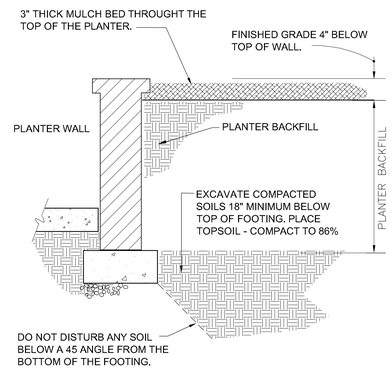
LDI-329333.01-03



NOTE: SCORE JOINTS EVENLY SPACED, 10' MAX.
EXPANSION JOINTS EVENLY SPACED, 40' MAX.

7 CONCRETE MOW CURB

LDI-329413.19-07



8 RAISED PLANTER EXCAVATION AND BACKFILL

329363.16-01

1" = 1'-0"

ENTIRE SHEET IS PART OF ALTERNATE #1 1

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LANDSCAPE ARCHITECT 15 FEB 2013

LANDMARK DESIGN INCORPORATED
LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: ldi-ut.com

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

Landscape Details

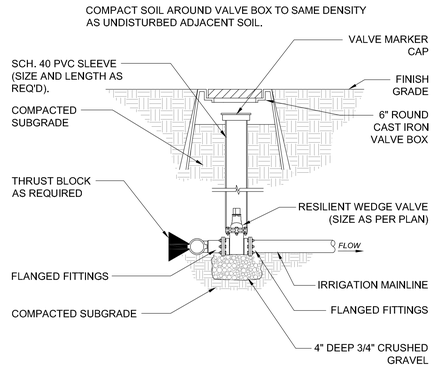
#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY H. Holt
CHECKED BY M. Vlasic
PROJECT NO. 11007
DRAWING NO. LS502
DATE 02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

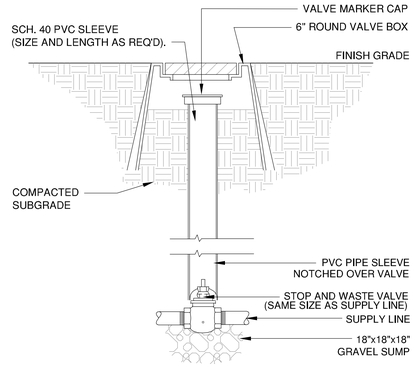
Plotted: Apr 04, 2013 - 5:37pm
R:\PROJECTS\LC\PROTO\CAMPWILLIAMS_BEQ_JAN2011\3 CD INFO\UNGBEQ4-LS501DET.dwg

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM



1 ISOLATION VALVE

LDI-328406.33-08

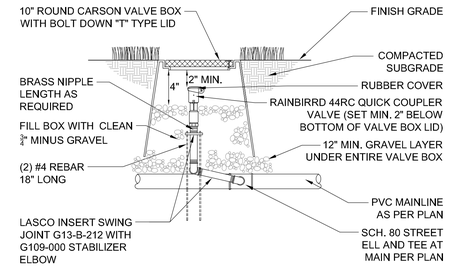


2 STOP AND WASTE VALVE

LDI-328406.02-01

3 DETAIL NOT USED

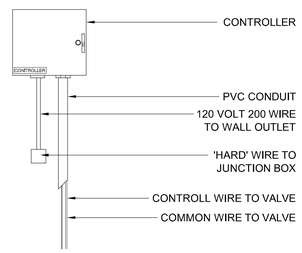
LDI-010101-01



4 QUICK COUPLER

LDI-328406.43-08

NOTES:
1 - SEE MANUAL FOR MOUNTING INSTRUCTIONS.
2 - ALL WIRING TO BE INSTALLED AS PER LOCAL CODES.
3 - CONTROLLER TO BE LOCATED AS SHOWN ON PLANS COORDINATE WITH OWNER'S AUTHORIZED REPRESENTATIVE AND ELECTRICAL CONTRACTOR..



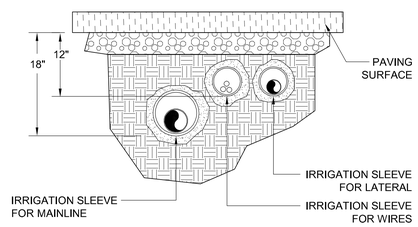
5 WALL MOUNT CONTROLLER

328409.13-10

NOTE:

SURROUND ALL SLEEVING IN 2" MINIMUM SAND ALL AROUND.

EXTEND ALL SLEEVING A MINIMUM OF 6" BEYOND EDGE OF PAVING.



6 TYPICAL SLEEVING

328409.76-06

SLEEVE SIZE CHART

PIPE SIZE	MIN. SLEEVE SIZE
3/4"	1 1/2"
1"	2"
1 1/4"	2 1/2"
1 1/2"	3"
2"	4"
2 1/2"	6"
3"	6"
4"	8"
6"	12"

*WHEN MULTIPLE PIPES OCCUR IN ONE TRENCH, ADD REQUIRED SLEEVE SIZES TOGETHER FOR 1 SLEEVE SIZE.

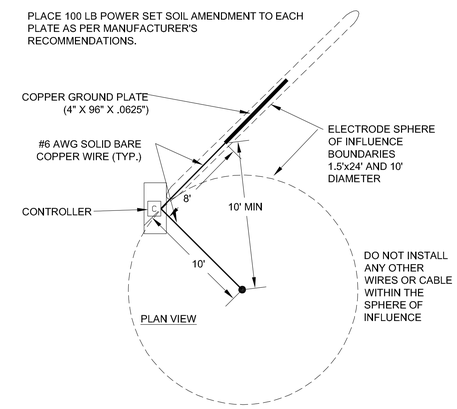
*WIRES SHALL BE IN SEPARATE CONDUIT AS PER CHART BELOW

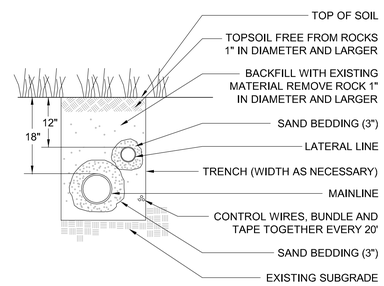
WIRE CONDUIT SIZES

NUMBER OF WIRES	MIN. CONDUIT SIZE
1-7	1"
8-11	1 1/2"
12-22	2"
23-31	2 1/2"
32-36	3"

7 SLEEVING REQUIREMENTS

328409.76-07

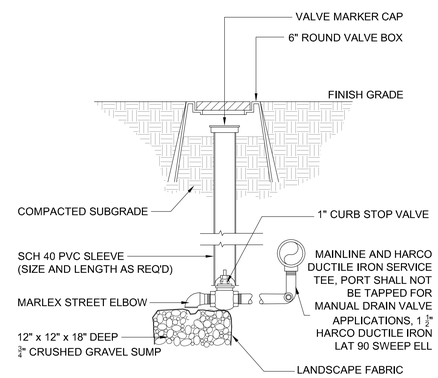




TIE A LOOSE 20" LOOP IN ALL WIRING AT CHANGES OF DIRECTION GREATER THAN 30 DEGREES. UNTIE ALL LOOPS AFTER CONNECTIONS HAVE BEEN MADE.

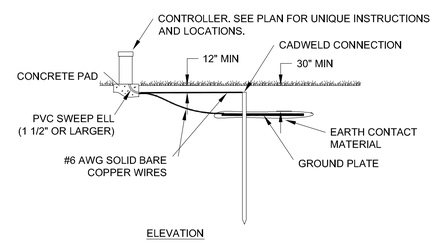
8 TYPICAL TRENCHING

LDI-328409.76-12



9 MANUAL DRAIN VALVE

LDI-328409.86-02



10 GROUNDING PLATE AND ROD

328409.79-02

ENTIRE SHEET IS PART OF ALTERNATE #1 (1)

SEAL & SIGNATURE.

STATE OF UTAH HUGH HOLT NO. 106783 LANDSCAPE ARCHITECT 15 FEB 2013

LANDMARK DESIGN INCORPORATED
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BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED QUARTERS
RIVERTON, UT 84065

Irrigation Details

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt
CHECKED BY: M. Vlasic
PROJECT NO.: 11007
DRAWING NO.: LS503
DATE: 02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

Repent, Apr 04, 2013 - 3:27pm
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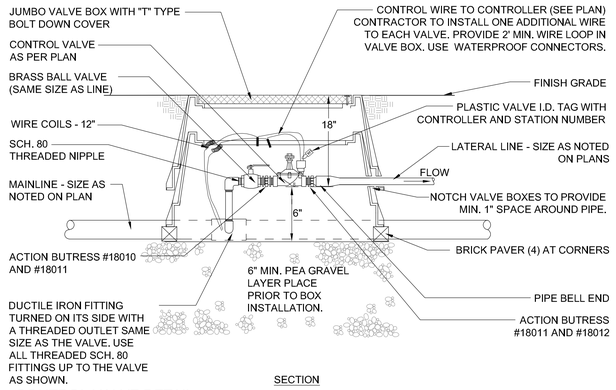
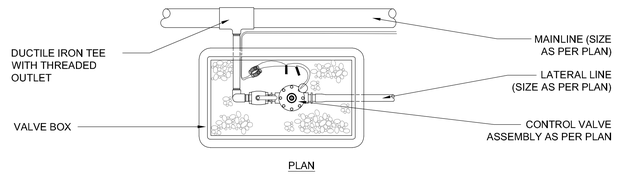
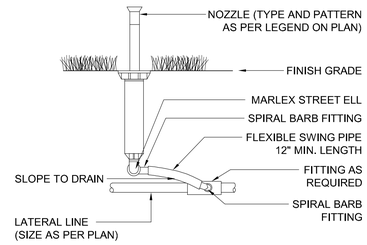




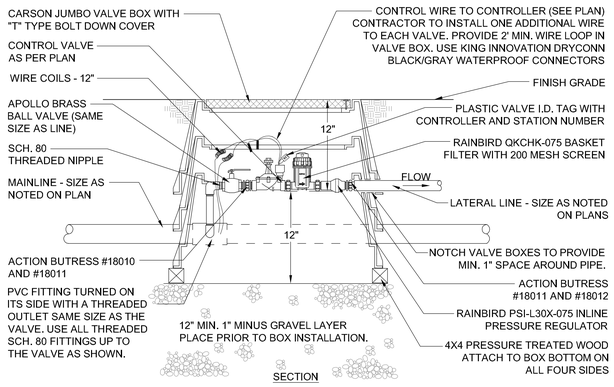
1 CONTROL VALVE DETAIL

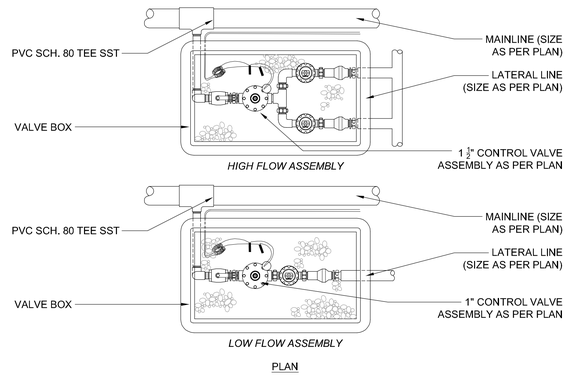
328406.01-04



2 POP-UP SPRAY HEAD

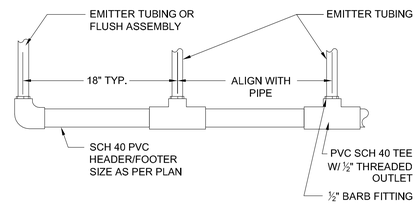
328403-02





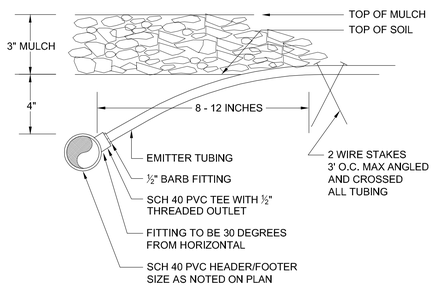
3 DRIP VALVE/FILTER/PRESSURE REG. DETAIL

328413.76-07



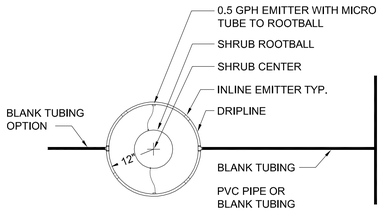
4 PVC HEADER AND EMITTER TUBING

LDI-328413.56-18



5 PVC-EMITTER TUBING TRANSITION AND STAKING

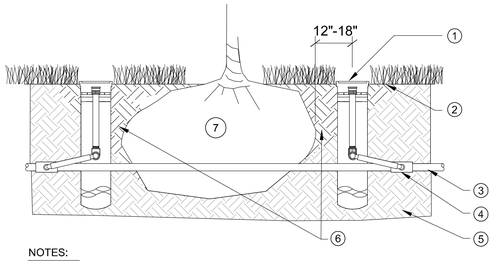
LDI-328413.56-22



NOTES:
1. LENGTH OF DRIPLINE IS 7.5' PER SHRUB.
2. VERIFY THAT THERE ARE FOUR INLIINE EMITTERS ON DRIPLINE BEFORE PLACING AROUND SHRUB.
3. DRIPLINE MAY NOT BE LOOPED CONTINUOUSLY. BLANK TUBING MAY BE USED TO CONNECT A SERIES OF SHRUB LOOPS.
4. STAKE TUBING AS DETAILED.

6 DRIP TUBING (SHRUB)

328413.56-01

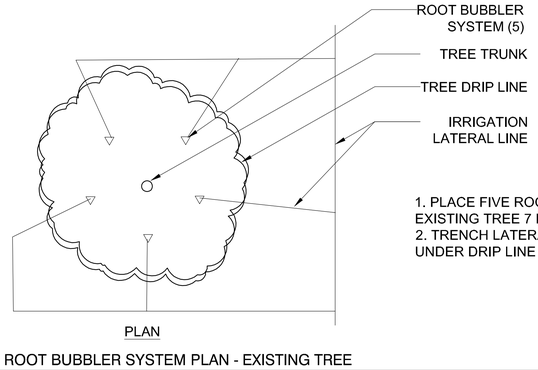


1. ROOT WATER SYSTEM (RWS) SEE IRRIG. PLAN FOR MODEL NO.
2. FINISH GRADE
3. LATERAL LINE
4. PVC SCH. 80 ELL OR TEE
5. EXISTING SOIL
6. BACKFILL MIX SEE DETAIL
7. TREE ROOT BALL

NOTES:
1. THREE RWS PER TREE TYP.
2. PLACE RWS ON UPHILL SIDE OF TREE ROOT BALL

7 ROOT WATER SYSTEM

328499-07



1. PLACE FIVE ROOT BUBBLER SYSTEMS ABOUT THE EXISTING TREE 7 FEET FROM TREE TRUNK.
2. TRENCH LATERAL PIPE PERPENDICULAR TO TREE UNDER DRIP LINE 8 INCHES DEEP.

8 ROOT BUBBLER SYSTEM PLAN - EXISTING TREE

328499-09

ENTIRE SHEET IS PART OF ALTERNATE #1 (1)

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STATE OF UTAH · HUGH HOLT · NO. 106783 · LICENSED ARCHITECT · 15 FEB 2013

LANDMARK DESIGN INCORPORATED
LANDSCAPE ARCHITECTURE AND LAND PLANNING
2834 Highland Drive
Salt Lake City
Utah 84106
Phone: (801) 474-3300
Web: ldi-ut.com

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UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED QUARTERS
RIVERTON, UT 84065

Irrigation Details

#	DATE	BY	DESCRIPTION
1	4/5/13	HH	Addendum #3

DRAWN BY: H. Holt
CHECKED BY: M. Vlasic
PROJECT NO. 11007
DRAWING NO. LS504
DATE 02/15/2013

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Robert, Apr 04, 2013 - 3:35pm
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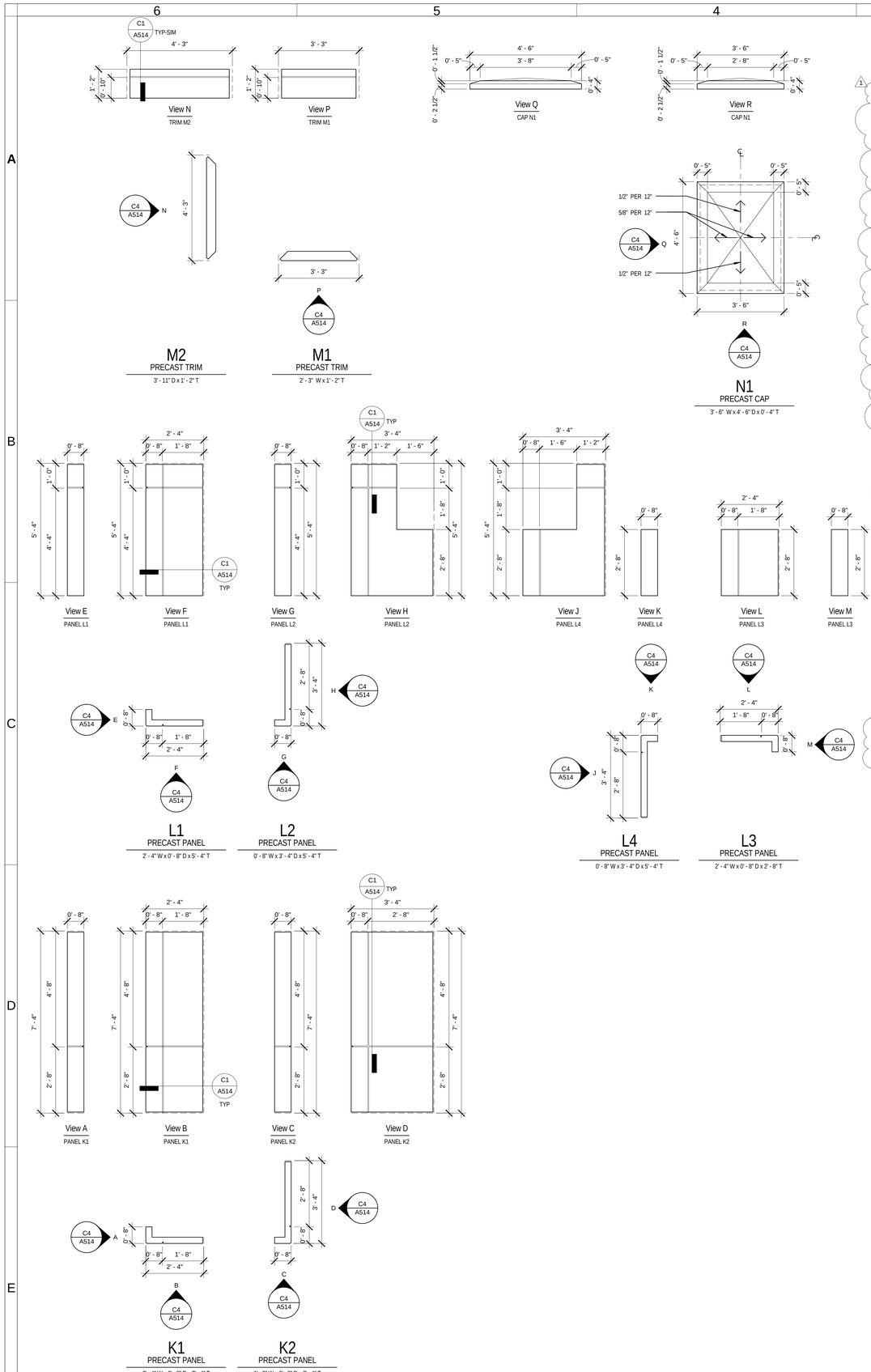
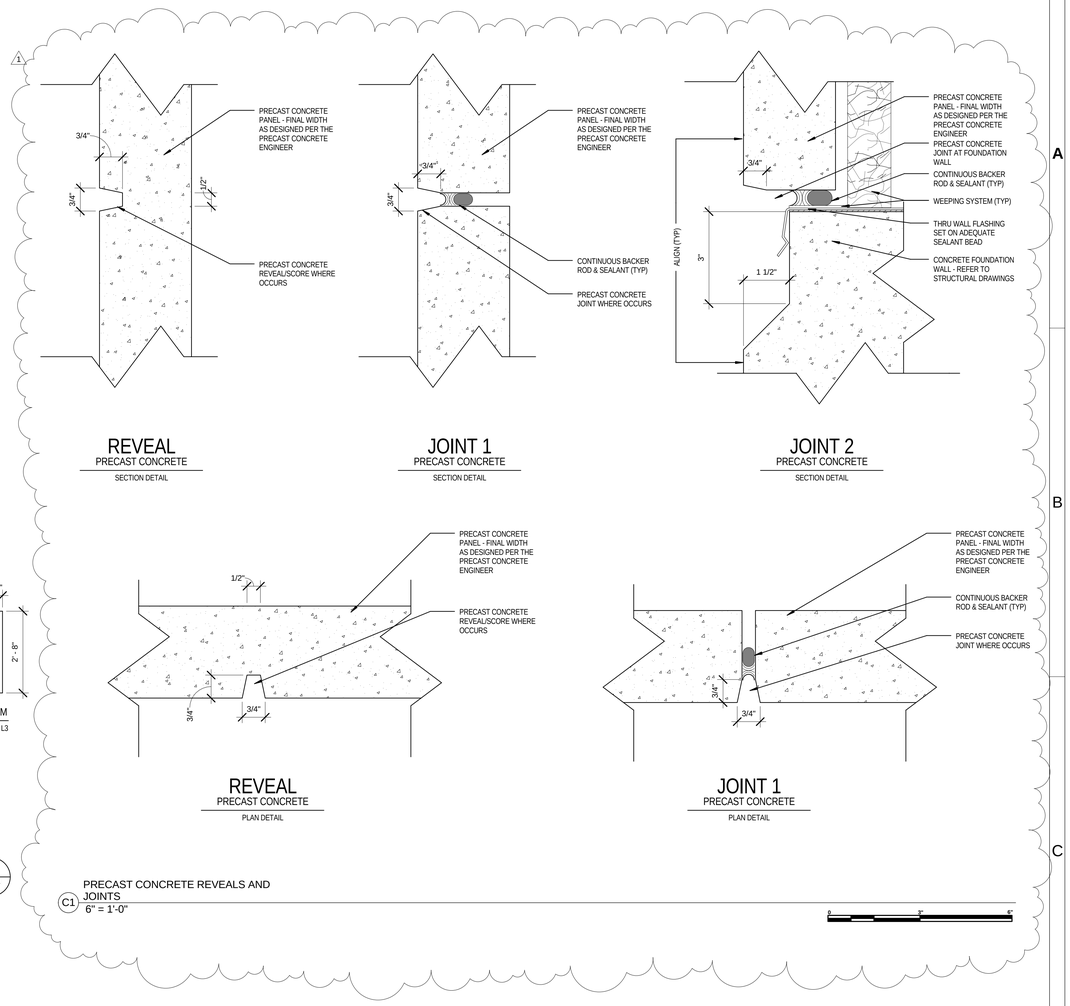
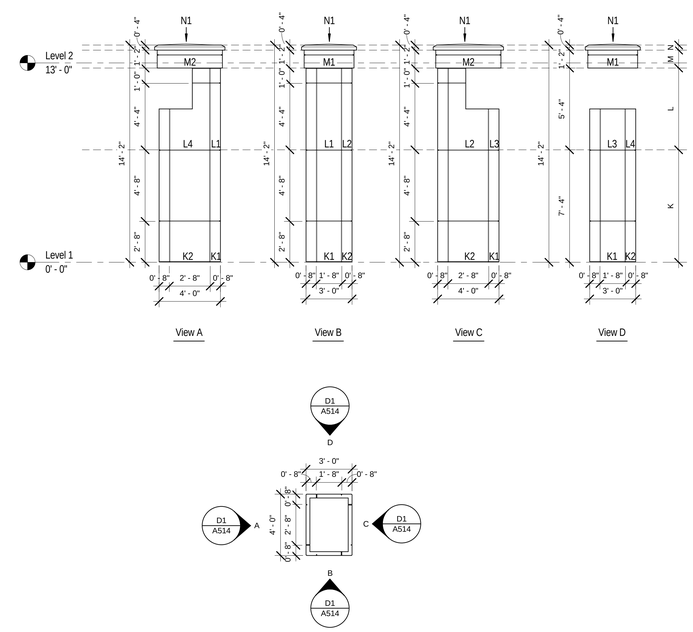


C4 PRECAST CONCRETE COLUMN - MAIN ENTRIES - ELEVATIONS
1/2" = 1'-0"



C1 PRECAST CONCRETE REVEALS AND JOINTS
6" = 1'-0"



D1 PRECAST CONCRETE COLUMN - MAIN ENTRIES
1/4" = 1'-0"

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ERIC R. THOLEN
129665
LICENSED ARCHITECT

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DESIGN, CALCULATIONS & SUPPORT OF THE PRECAST CONCRETE PANELS AND THEIR CONNECTION TO THE BUILDING STRUCTURE, INCLUDING THE REQUIRED DEFLECTION AND TOLERANCES NEEDED TO SATISFY THE DESIGN LAYOUT.
2. QUANTITIES OF PANELS ARE AFFECTED BY THE DESIGN ALTERNATES, REFER TO OVERALL PLANS AND NOTES.
3. THICKNESS OF PRECAST ELEMENTS ARE ASSUMED IN THE DESIGN. PRECAST CONCRETE ENGINEER TO DETERMINE FINAL REQUIRED THICKNESS AND ADJUST THE DEPTHS ACCORDINGLY WITHOUT MODIFYING THE OVERALL WIDTHS & HEIGHTS OF PANELS OR REVEALS.
4. PANELS CAN BE MERGED, PROVIDED CONTROL JOINTS & SCORE LINES ARE MAINTAINED. REQUIRED FLASHING AND CAULKING OF PANELS IS TO BE COORDINATED WITH FINAL DESIGN, AND CONTRACTOR MUST INCLUDE THE COST ASSOCIATED WITH THEM FROM THE BEGINNING.
5. CONTRACTOR IS RESPONSIBLE FOR THE PROPER COORDINATION OF ROUGH OPENINGS FOR WINDOWS, DOORS, LOUVERS, AND ANY OTHER OBJECTS PART OF THE FACADE THAT ARE PENETRATING THE PRECAST CONCRETE PANELS.
6. COORDINATE WITH ARCHITECT THE FINAL COLORS OF PRECAST CONCRETE AND TRIMS- ASSUME FOR THE BID A MINIMUM OF TWO COLORS.
7. CONTRACTOR MUST INCLUDE THE CONTINUOUS SEALANT REQUIRED FOR PRECAST CONCRETE ELEMENTS AND WHEN BUTTING AGAINST OTHER MATERIALS OF THE FACADE (TYPICAL).
8. PRECAST CONCRETE PANEL ELEVATIONS ARE NOT SHOWING THE CONCRETE PANEL BEHIND THE DOOR AND WINDOW PRECAST CONCRETE TRIMS. CONTRACTOR NEEDS TO INCLUDE THESE AREAS IN THE DESIGN. SHOP DRAWINGS AND ASSOCIATED COST (TYPICAL) - REFER TO WINDOW AND DOOR DETAILS AND TYPICAL PRECAST CONCRETE CONNECTION DETAILS.
9. CONTRACTOR IS RESPOSIBLE FOR MEASURING AND VERIFYING ALL DIMENSIONS IN THE FIELD. DO NOT INITIATE FABRICATION WITHOUT COMPLYING WITH THE PROPER COORDINATION OF ALL ITEMS AFECTING THE PRECAST CONCRETE PANELS FINAL DESIGN.

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RIVERTON, UT 84062

PRECAST CONCRETE

#	DATE	BY	DESCRIPTION
1	04/05/2013	CR	ADDENDUM #3

DRAWN BY: CO CS CR
CHECKED BY: CR MM
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: A514

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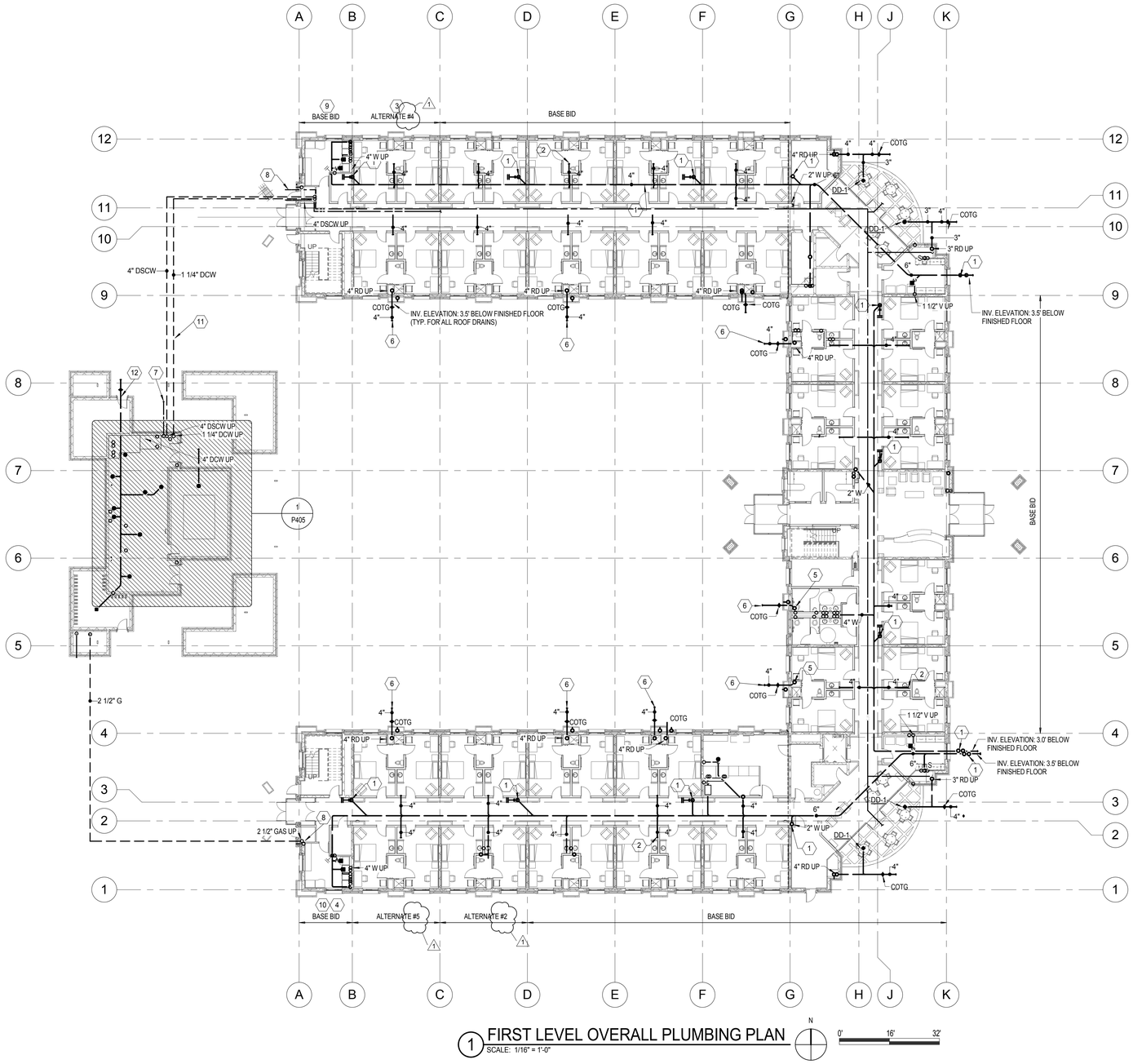

1 FIRST LEVEL OVERALL PLUMBING PLAN
SCALE: 1/16" = 1'-0"

N

0' 16' 32'

SHEET KEYNOTES

1 RISE TO CLEAN OUT. SEE FIRST FLOOR PLUMBING PLAN.

2 TAKE-OFF FOR BILLET RISER, TYPICAL.

3 ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

4 IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

5 SEE FIRST LEVEL PLUMBING PLANS FOR CONTINUATION, TYPICAL.

6 SEE CIVIL PLANS FOR CONINTUATION.

7 SEE CIVIL PLANS FOR CONTINUATION OF WATER MAIN.

8 BASED ON WHICH ALTERNATES ARE ACCEPTED, EXTEND PIPING AS NEEDED INTO BUILDING AS SHOWN.

9 IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

10 IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

11 INSTALL PIPING 5' BELOW GRADE. COORDINATE WITH CIVIL.

12 INVERT ELEVATION: 3'-0" BELOW FINISHED FLOOR.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

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BRADLEY W. WELCH
11-12-12
STATE OF UTAH

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VBFA Project Number: 11038

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FIRST LEVEL OVERALL PLUMBING PLAN

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: P100

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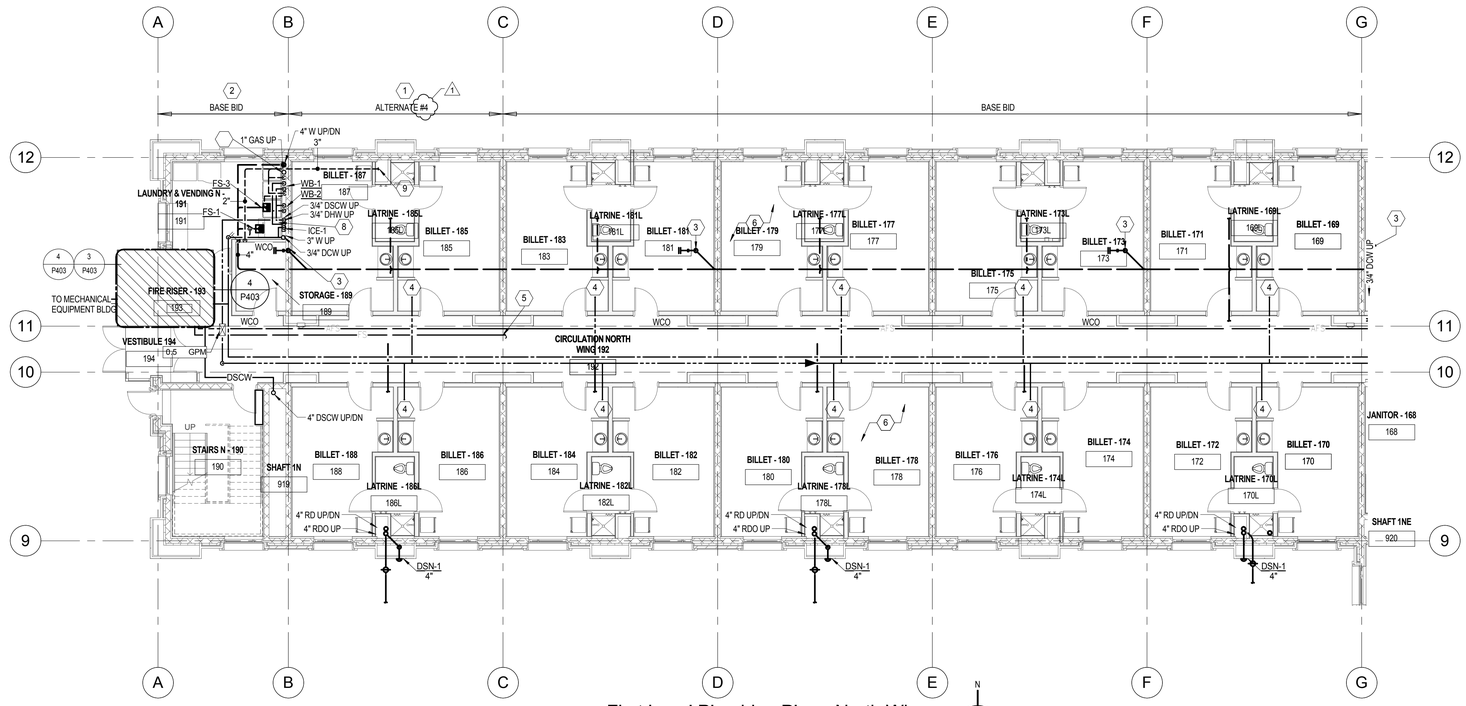
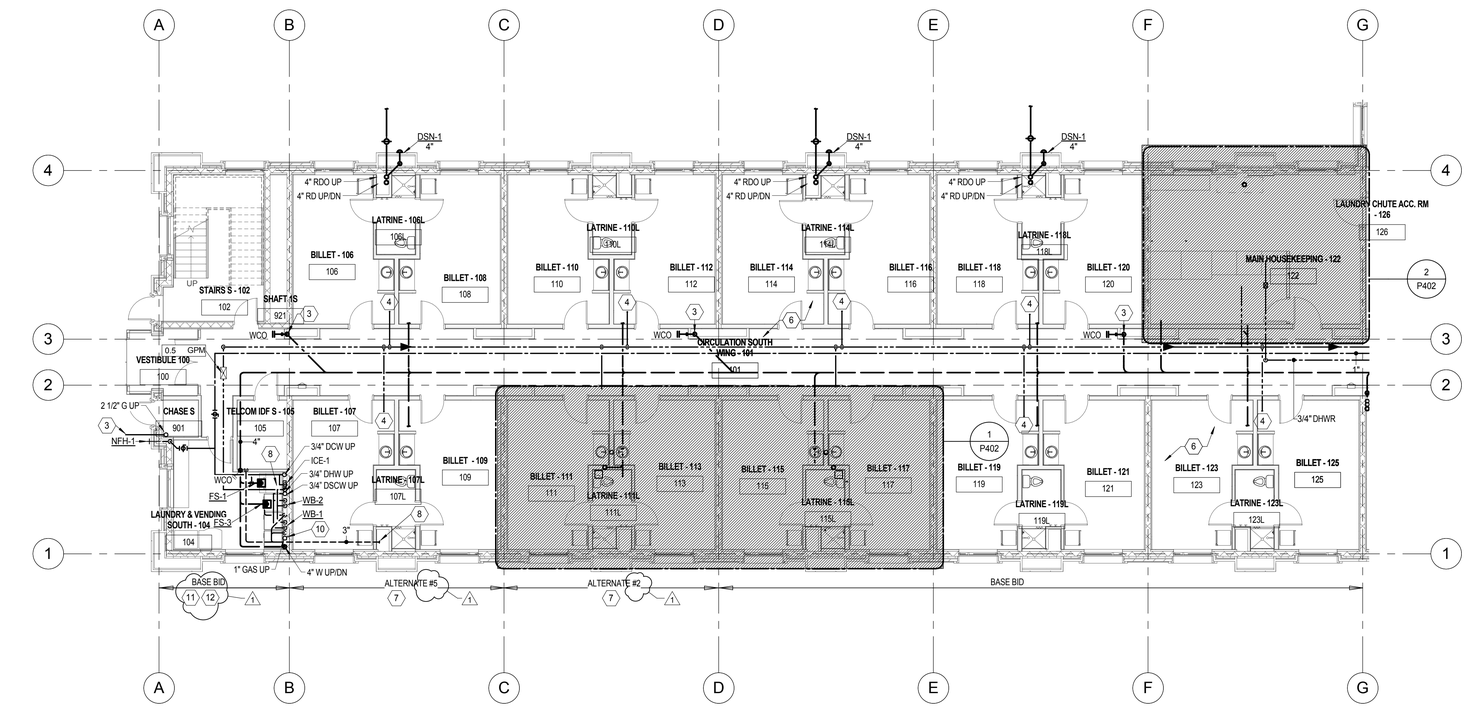
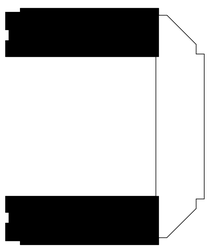


1 First Level Plumbing Plan - North Wing
SCALE: 1/8" = 1'-0"



2 First Level Plumbing Plan - South Wing
SCALE: 1/8" = 1'-0"



KEY PLAN

SEAL & SIGNATURE

PROFESSIONAL ENGINEER 7705747-2202 BRADLEY J. WELCH STATE OF UTAH 11-12-12

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VBFA Project Number: 11038

SHEET KEYNOTES

1. ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
2. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
3. SEE LEVEL 1 OVERALL PLUMBING PLAN FOR CONTINUATION.
4. SEE LARGE SCALE PLANS FOR CONTINUATION.
5. FIRE SPRINKLER MAIN TO FIRE SPRINKLERS ON THIS FLOOR
6. ALL FIRE SPRINKLERS ARE TO BE THE CONCEALED TYPE, TYPICAL.
7. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
8. 3/4" DSCW AND DHW FROM RISERS. PROVIDE ISOLATION VALVES AND 12"X12" ACCESS DOOR FOR VALVE ACCESS.
9. TIE VENT LINE INTO BILLET TOILET ROOM VENT. SEE LARGE SCALE PLANS.
10. STUB 3/4" GAS LINE BEHIND DRYER. PROVIDE GAS COCK.
11. IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.
12. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

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FIRST LEVEL PLUMBING PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DRAWING NO.: P101A
DATE: 02/15/2013

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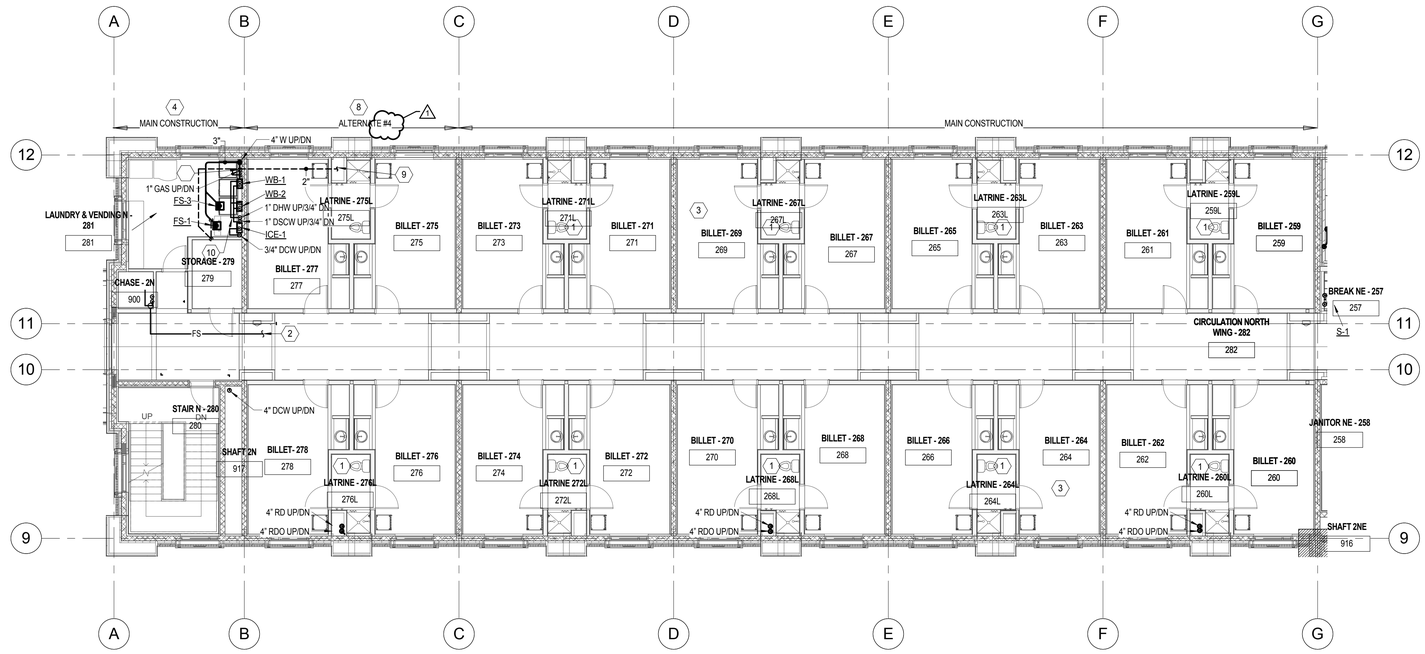
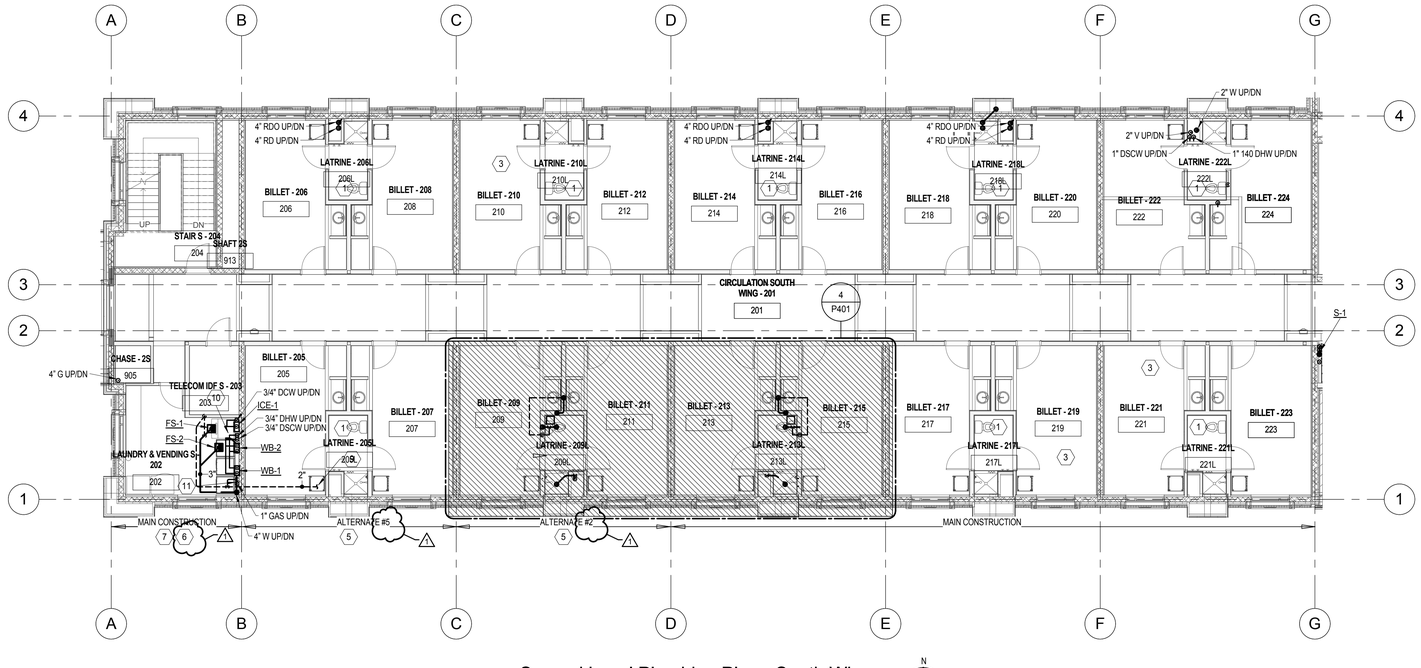


1 Second Level Plumbing Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Second Level Plumbing Plan - South Wing
SCALE: 1/8" = 1'-0"

KEY PLAN

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
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SEAL & SIGNATURE
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SHEET KEYNOTES

1. SEE LARGE SCALE PLANS FOR PLUMBING LAYOUT IN THIS ROOM.
2. FIRE SPRINKLER MAIN TO FIRE SPRINKLERS ON THIS FLOOR
3. ALL FIRE SPRINKLERS ARE TO BE THE CONCEALED TYPE, TYPICAL
4. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
5. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
6. IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.
7. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
8. ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
9. TIE VENT LINE INTO BILLET TOILET ROOM VENT. SEE LARGE SCALE PLANS.
10. 3/4" DSCW AND DHW FROM RISERS. PROVIDE ISOLATION VALVES AND 12"X12" ACCESS DOOR FOR VALVE ACCESS.
11. STUB 3/4" GAS LINE BEHIND DRYER. PROVIDE GAS COCK.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

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SECOND LEVEL PLUMBING PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DRAWING NO.: P102A
DATE: 02/15/2013

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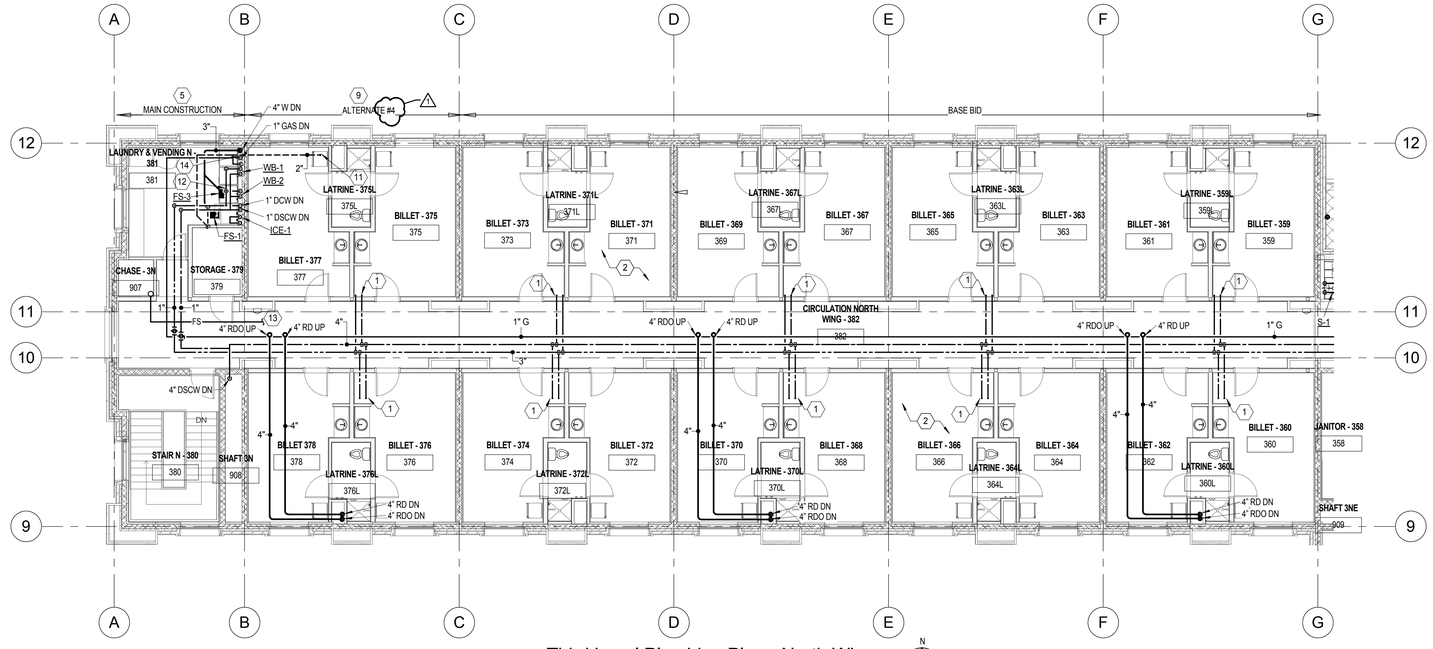
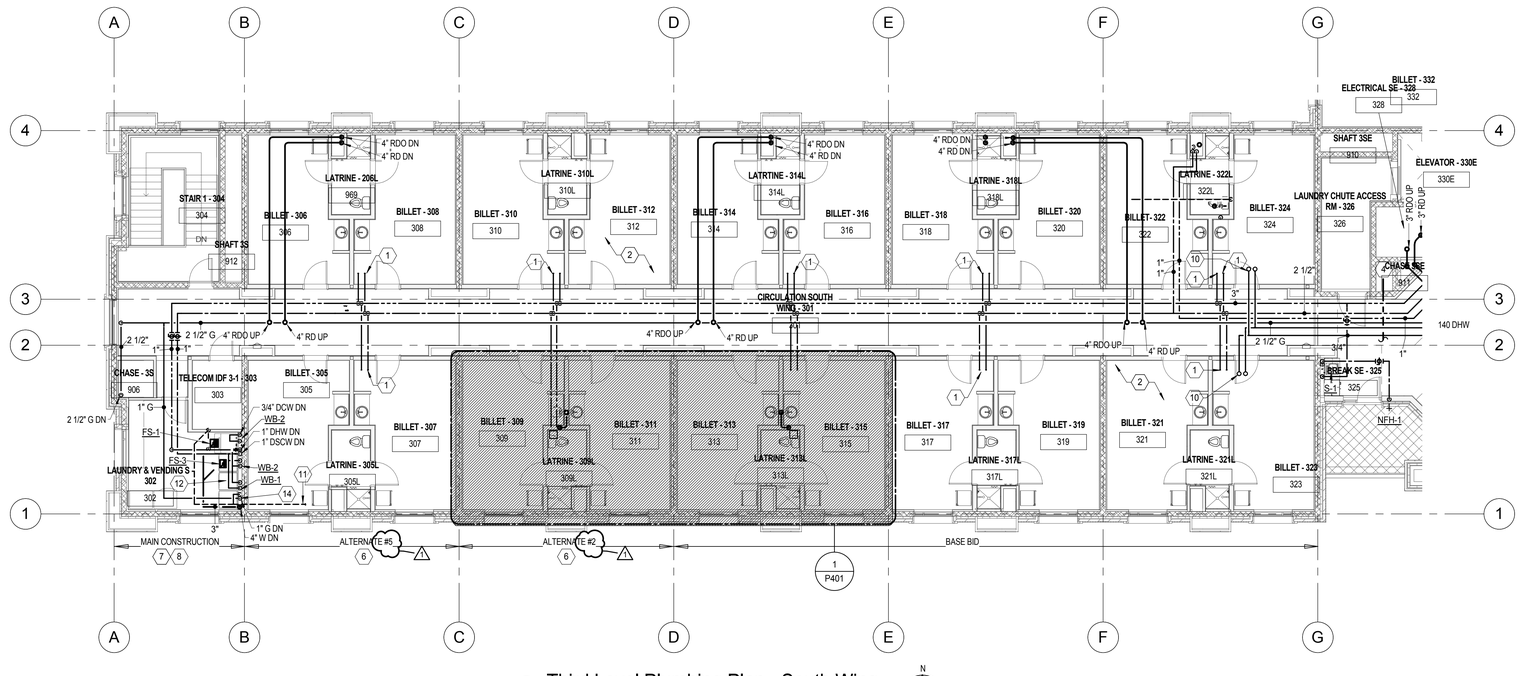
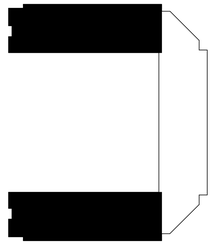


1 Third Level Plumbing Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Third Level Plumbing Plan - South Wing
SCALE: 1/8" = 1'-0"



KEY PLAN

SEAL & SIGNATURE

PROFESSIONAL ENGINEER 7705747-2202 BRADLEY J. WELCH 11-12-12 STATE OF UTAH

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VBFA Project Number: 11038

SHEET KEYNOTES

1. SEE LARGE SCALE PLANS FOR PLUMBING LAYOUT IN THIS ROOM.
2. ALL FIRE SPRINKLERS ARE TO BE THE CONCEALED TYPE, TYPICAL.
3. SEE LARGE SCALE PLANS FOR CONTINUATION.
4. CONNECT THE FIRE SPRINKLER MAIN TO THE SPRINKLER CONNECTION POINT IN THE LAUNDRY CHUTE.
5. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
6. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
7. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
8. IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.
9. ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
10. SOLAR HEATING WATER RETURN AND SUPPLY PIPING UP TO SOLAR PANELS ON ROOF. THIS PIPING IS PART OF ALTERNATE #3.
11. TIE VENT LINE INTO BILLET TOILET ROOM VENT. SEE LARGE SCALE PLANS.
12. 3/4" DSCW AND DHW FROM MAIN. PROVIDE ISOLATION VALVES AND 12"x12" ACCESS DOOR FOR VALVE ACCESS.
13. TO FIRE SPRINKLERS ON THIS FLOOR.
14. STUB 3/4" GAS LINE BEHIND DRYER. PROVIDE GAS COCK.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

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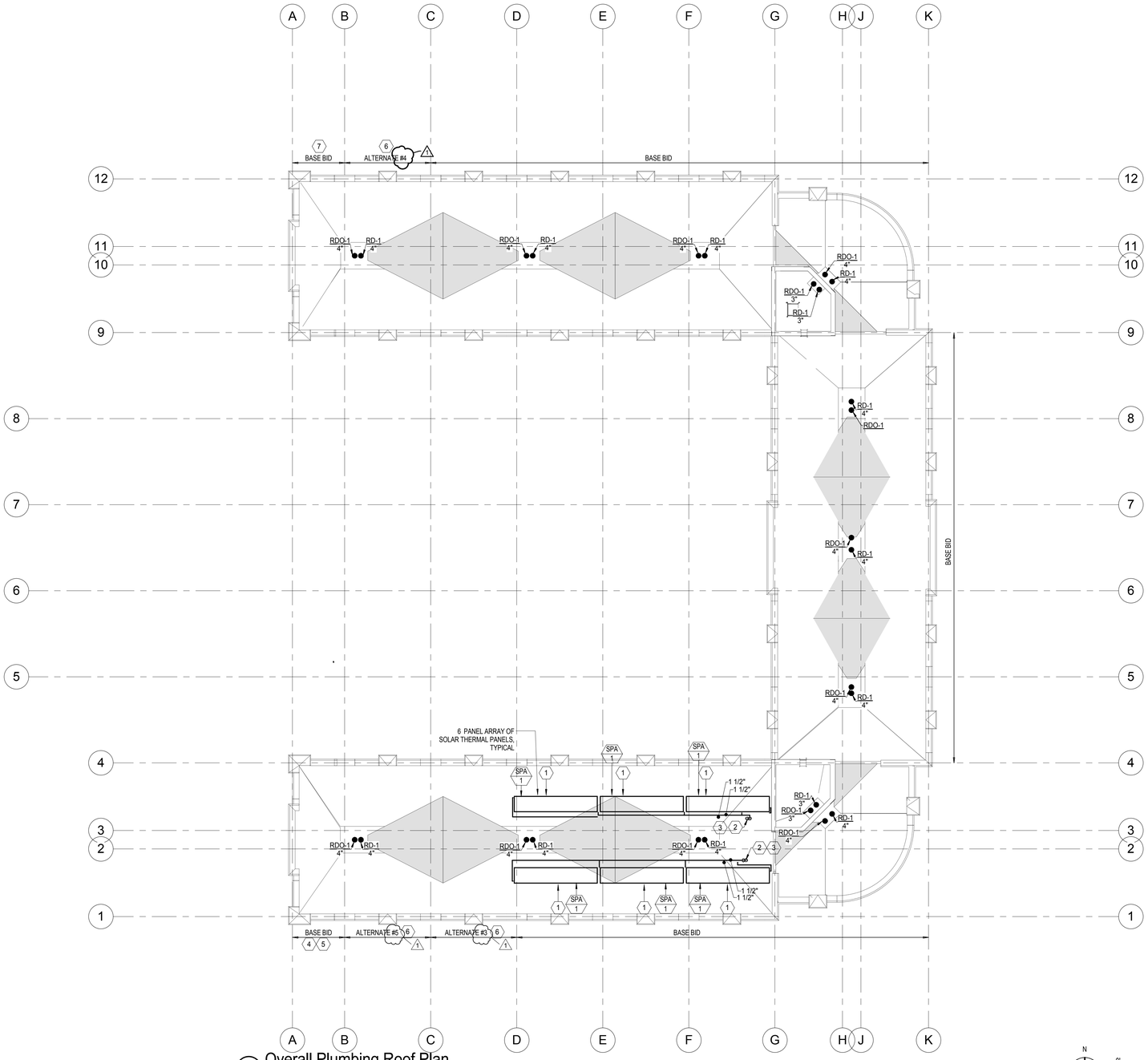
THIRD LEVEL PLUMBING PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY GR	CHECKED BY BW
PROJECT NO. 11007	DRAWING NO. P103A
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



1 Overall Plumbing Roof Plan
SCALE: 1/16" = 1'-0"

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

PROFESSIONAL ENGINEER
7705747-2202
BRADLEY W. WELCH
11-12-12
STATE OF UTAH

VAN BOERUM & FRANK ASSOCIATES, INC.
CONSULTING ENGINEERS
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Salt Lake City • Logan • St. George • Tempe
330 South 300 East 801.530.3148 T
Salt Lake City, UT 84111 801.530.3150 F
VBFA Project Number: 11038

SHEET KEYNOTES

1. SOLAR PANEL ARRAYS AND RELATED PIPING ARE PART OF ALTERNATE #3.
2. SOLAR HEATING WATER SUPPLY AND RETURN PIPING DOWN.
3. SOLAR PANEL ARRAY WITH SIX SOLAR PANELS. 1" INLET AND OUTLET CONNECTION ON EACH ARRAY.
4. IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.
5. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
6. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
7. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

OVERALL PLUMBING ROOF PLAN

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: P104

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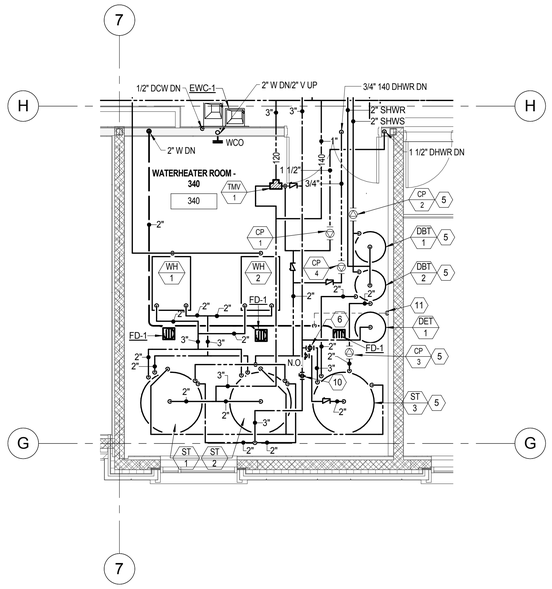
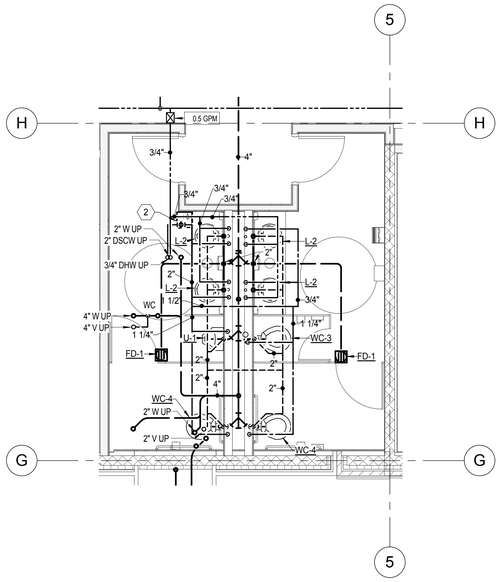
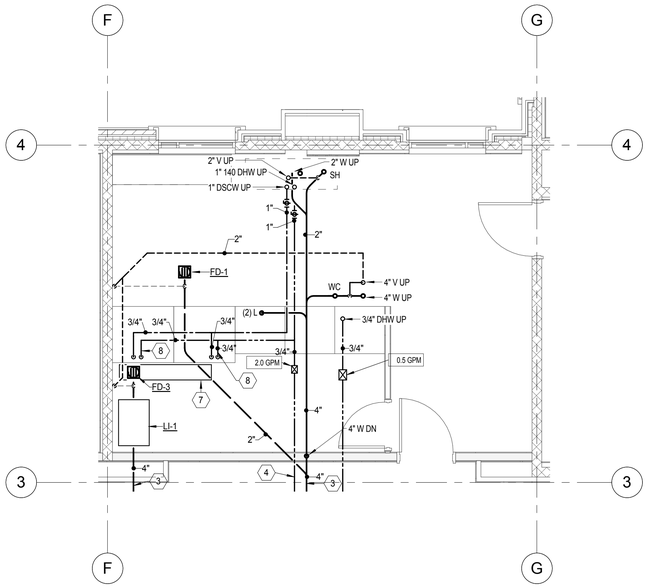


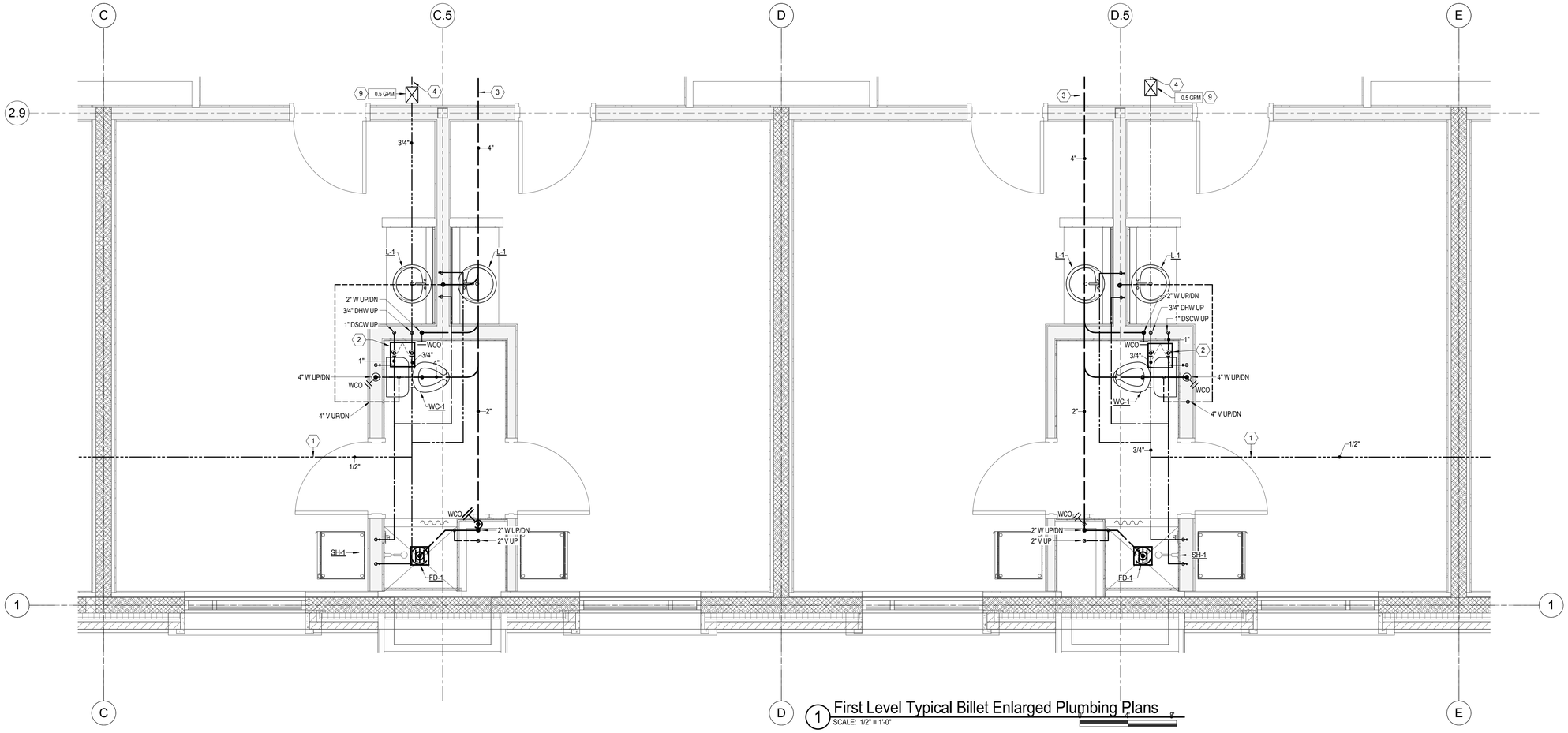
4 Water Heater Room - 340 Enlarged Plumbing Plan
SCALE: 1/4" = 1'-0"



3 Mens - 140 & Womens - 138 Enlarged Plumbing Plans
SCALE: 1/4" = 1'-0"



2 Main Housekeeping - 122 Enlarged Plumbing Plan
SCALE: 1/4" = 1'-0"



1 First Level Typical Billet Enlarged Plumbing Plans
SCALE: 1/2" = 1'-0"

SHEET KEYNOTES

1. THIS LINE TO ONLY BE INSTALLED ON THOSE BILLETS BORDERING THE BREAKROOMS IN THE NORTHEAST AND SOUTHEAST CORNERS OF THE BUILDING.
2. 12"X12" ACCESS DOOR.
3. SEE OVERALL PLUMBING FLOOR PLAN FOR CONTINUATION.
4. SEE LEVEL 1 PLUMBING FLOOR PLANS FOR CONTINUATION.
5. THIS EQUIPMENT IS PART OF ATERNATE #1.
6. NORMALLY OPEN VALVE AND BRANCH PIPING PART OF ALTERNATE #3.
7. 6'x1'x1' TROUGH. COORDINATE LOCATION WITH ARCHITECTURAL & STRUCTURAL.
8. PROVIDE BALL VALVE SHUT-OFF AND HOSE THREAD CONNECTION WITHIN 3 FT OF WASHER CONNECTION. COORDINATE DROP LOCATION WITH WASHER CONNECTION LAYOUT.
9. CIRCUIT SETTER CALIBRATE BALANCING VALVE. LOCATE ABOVE HALL CEILING. VALVE MUST BE ACCESSIBLE.
10. NORMALLY CLOSED VALVE IF ALTERNATE #1 IS ACCEPTED.
11. VENT. RISE TO CEILING SPACE AND PROVIDE AIR ADMITTANCE VALVE.

GENERAL NOTE:
ALL PIPE ROUTING AND HEAD PLACEMENT THAT AFFECTS THE AESTHETIC ELEMENTS OF THIS PROJECT IS TO BE COORDINATED AND APPROVED BY THE ARCHITECT. PARTICULARLY, THE DROPPED CEILINGS IN THE CORRIDORS AND THE EAST ENTRY LOBBY WILL REQUIRE CLOSE COORDINATION.

BUILDING OFFICIAL APPROVAL

SEAL & SIGNATURE
PROFESSIONAL ENGINEER 7705747-2202 BRADLEY J. WELCH 11-12-12 STATE OF UTAH
VAN BOERUM & FRANK ASSOCIATES, INC.
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VBFA Project Number: 11038

UTAH NATIONAL GUARD
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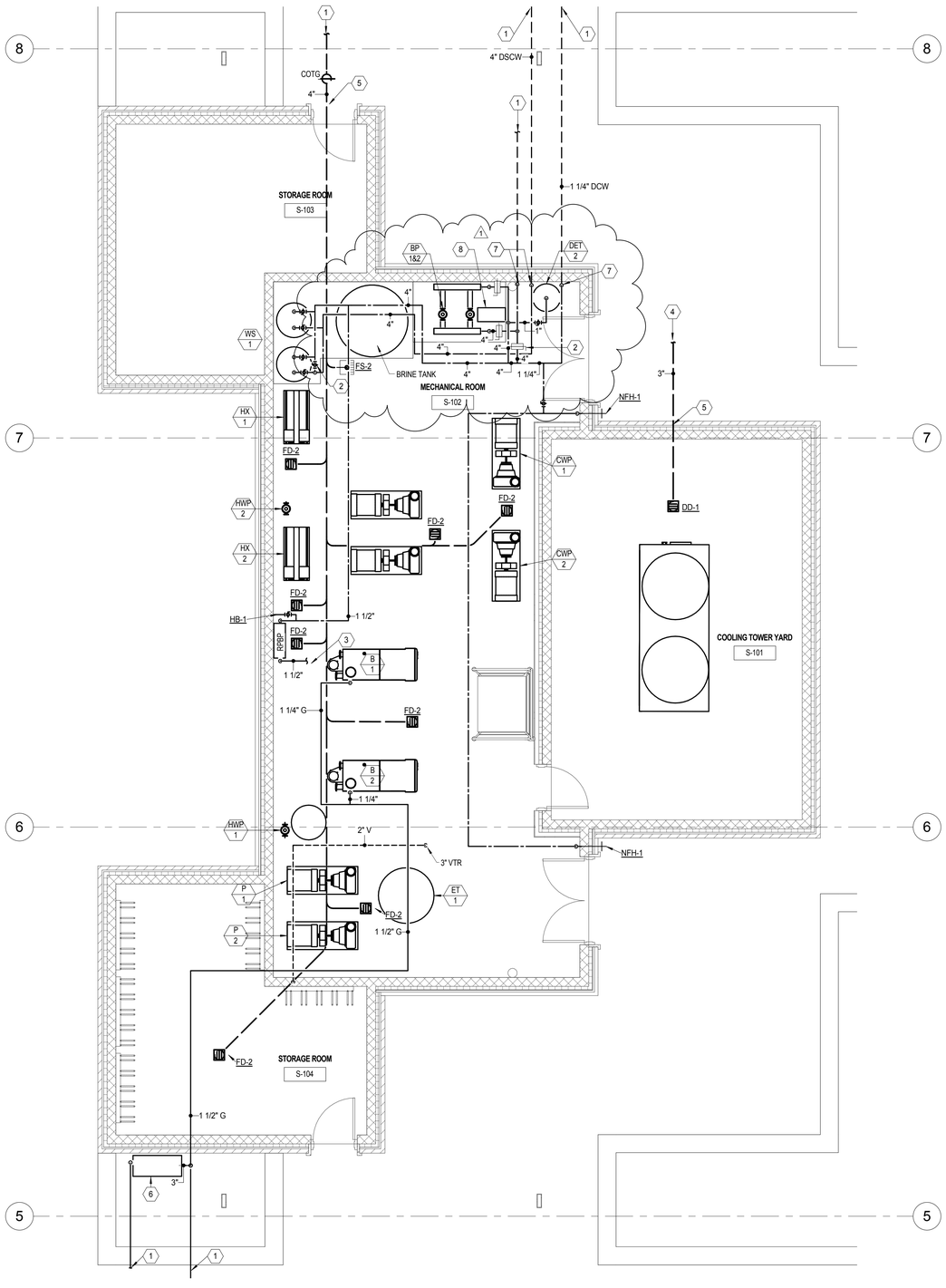
ENLARGED PLUMBING PLANS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: P402

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



1 Enlarged Boiler Building Plumbing Plan
SCALE: 1/4" = 1'-0"

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

PROFESSIONAL ENGINEER
7705747-2202
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Salt Lake City, UT 84111 801.530.3150 F
VBFA Project Number: 11038

SHEET KEYNOTES

1 SEE CIVIL FOR CONTINUATION.

2 NORMALLY CLOSED VALVE.

3 BOILER MAKE-UP LINE. EXTEND AND CONNECT TO BOILERS.

4 SEE CIVIL PLANS FOR CONINTUATION.

5 INVERT ELEVATION: 3'-0" BELOW FINISHED FLOOR.

6 GAS METER AND PRESSURE REGULATOR. SIZE REGULATOR FOR 2 PSI OUTLET PRESSURE AND 6401 CFH. METER SHALL BE AMERICAN METER, SINGER OR ROCKWELL.

7 PROVIDE ISOLATION VALVE IN RISE.

8 BOOSTER PUMP CONTROL PANEL. CONNECT TO BUILDING ATC SYSTEM.

BUILDING OFFICIAL APPROVAL

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RIVERTON, UT 84065

Enlarged Boiler Building Plumbing Plan

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR	CHECKED BY: BW
PROJECT NO.: 11007	DRAWING NO.: P405
DATE: 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

PLUMBING FIXTURE SCHEDULE

ID	FIXTURE	CW (IN)	HW (IN)	W (IN)	V (IN)	NOTES	SPECIFICATIONS
WC-1	WATER CLOSET	1	-.-	4	2	FLOOR MOUNTED, DUAL FLUSH TANK	WATER CLOSET (FLOOR MOUNT, DUAL FLUSH TANK): ZURN Z5572 VITREOUS CHINA, ELONGATED BOWL, PRESSURE ASSIST, DUAL FLUSH TANK TYPE TOILET, WITH 1.6 GPF FULL FLUSH AND 1.0 GPF PARTIAL FLUSH; BEMIS 3155C "DURAGUARD" WHITE, SOLID PLASTIC, OPEN FRONT SEAT, LESS COVER; FLEXIBLE STAINLESS STEEL SUPPLY WITH LOOSE KEYANGLE STOP.
WC-2	WATER CLOSET	1	-.-	4	2	ADA, FLOOR MOUNTED, DUAL FLUSH TANK	WATER CLOSET (FLOOR MOUNT, DUAL FLUSH TANK, ADA): ZURN Z5562 ADA, VITREOUS CHINA, ELONGATED BOWL, PRESSURE ASSIST, DUAL FLUSH TANK TYPE TOILET, WITH 1.6 GPF FULL FLUSH AND 1.0 GPF PARTIAL FLUSH; BEMIS 3155C "DURAGUARD" WHITE, SOLID PLASTIC, OPEN FRONT SEAT, LESS COVER; FLEXIBLE STAINLESS STEEL SUPPLY WITH LOOSE KEYANGLE STOP.
WC-3	WATER CLOSET	1	-.-	4	2	WALL MOUNTED, DUAL FLUSH VALVE	WATER CLOSET: KOHLER K-4330 KINGSTON VITREOUS CHINA, WALL MOUNTED, ELONGATED BOWL TOILET WITH K-4670-C LUSTRA OPEN FRONT SEAT; SLOAN ECOS 8111-1.6/1.1 ELECTRONIC DUAL FLUSH, BATTERY POWERED, SIDE MOUNT SENSOR OPERATED, 1.6 GPF AND 1.1 GPF FLUSH VALVE; SMITH 0210 HORIZONTAL (LEFT OR RIGHT HAND AS REQUIRED) OR SMITH 0230 VERTICAL ADJUSTABLE CARRIER WITH FOOT SUPPORT; INSTALL ACTUATOR ON WIDE SIDE OF FIXTURE; SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
WC-4	WATER CLOSET	1	-.-	4	2	ADA, WALL MOUNTED, DUAL FLUSH VALVE	WATER CLOSET: KOHLER K-4330 KINGSTON VITREOUS CHINA, WALL MOUNTED, ELONGATED BOWL TOILET WITH K-4670-C LUSTRA OPEN FRONT SEAT; SLOAN ECOS 8111-1.6/1.1 ELECTRONIC DUAL FLUSH, BATTERY POWERED, SIDE MOUNT SENSOR OPERATED, 1.6 GPF AND 1.1 GPF FLUSH VALVE; SMITH 0210 HORIZONTAL (LEFT OR RIGHT HAND AS REQUIRED) OR SMITH 0230 VERTICAL ADJUSTABLE CARRIER WITH FOOT SUPPORT; INSTALL ACTUATOR ON WIDE SIDE OF FIXTURE; SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
U-1	URINAL	3/4	-.-	2	2	WALL HUNG, 1/8 GPF, ADA	URINAL: ZURN Z5798.235 VITREOUS CHINA ADA URINAL WITH 3/4" TOP SPUD, WITH ZURN ZER6003AV-ULF-CPM 0.125 GPF BATTERY POWERED SENSOR FLUSH VALVE; SMITH 0637 URINAL SUPPORT. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
L-1	LAVATORY	1/2	1/2	1 1/2	1 1/2	COUNTER MOUNTED	LAVATORY (COUNTER MOUNTED): KOHLER K-2196-4 PENNINGTON SELF RIMMING VITREOUS CHINA OVAL LAVATORY WITH 4" FAUCET CENTERS; K-7715 OPEN GRID STRAINER; CHICAGO 802-VE2805-244CP TWO HANDLE FAUCET WITH LEVER HANDLES AND VANDAL PROOF 0.5 GPM PRESSURE COMPENDATING SPRAY OUTLET, WATTS MMV THERMOSTATIC MIXING VALVE. PROVIDE WATTS NO. 7 DUAL CHECKS IN HOT AND COLD SUPPLIES. EXTEND TEMPERED SUPPLY FROM MIXING VALVE OUTLET TO HOT WATER INLET OF FAUCET. PROVIDE LOOSE KEY ANGLE STOPS AND CHROME PLATED COPPER SUPPLIES AND 17 GA. CAST BRASS, CHROME PLATED "P" TRAP. COVER ALL EXPOSED PIPING WITH WHITE "HANDI-LAV GUARD" PROTECTOR TO MEET ADA REQUIREMENTS.
L-2	LAVATORY	1/2	1/2	1 1/2	1 1/2	COUNTER MOUNTED	LAVATORY (COUNTER MOUNTED): KOHLER K-2196-4 PENNINGTON SELF RIMMING VITREOUS CHINA OVAL LAVATORY WITH 4" FAUCET CENTERS; K-7715 OPEN GRID STRAINER; TECHNICAL CONCEPTS 500484 MILANO WITH 0.5 GPM MAXIMUM FLOW AND WITH AC POWER ADAPTER FOR HARD WIRE INSTALLATION. FAUCET TO BE PROVIDED WITH WATTS MMV THERMOSTATIC MIXING VALVE WITH 3/8" COMPRESSION CONNECTIONS AND IN-LINE CHECKS. PROVIDE WATTS NO. 7 DUAL CHECKS IN HOT AND COLD SUPPLIES. EXTEND TEMPERED SUPPLY FROM MIXING VALVE OUTLET TO HOT WATER INLET OF FAUCET. PROVIDE VANDAL RESISTANT AERATOR. PROVIDE LOOSE KEY ANGLE STOPS AND CHROME PLATED COPPER SUPPLIES AND 17 GA. CAST BRASS, CHROME PLATED "P" TRAP. COVER ALL EXPOSED PIPING WITH WHITE "HANDI-LAV GUARD" PROTECTOR AS NEEDED TO MEET ADA REQUIREMENTS.
S-1	SINK	1/2	1/2	1 1/2	1 1/2	COUNTER MOUNTED	SINK (COUNTER MOUNTED): JUST SL-1921-A-GR 18 GA. TYPE 304 STAINLESS STEEL SINK 14" x 18" x 7.5" ID BASIN WITH 8" FAUCET CENTERS; J-35 STAINLESS STEEL CUP STRAINER; SYMMONS SYMMETRIX S23-IPS-1.5 SINGLE HANDLE FAUCET WITH PRESSURE COMPENDATING SPRAY OUTLET. PROVIDE LOOSE KEY ANGLE STOPS AND CHROME PLATED COPPER SUPPLIES AND 17 GA. CAST BRASS, CHROME PLATED "P" TRAP. COVER ALL EXPOSED PIPING WITH WHITE "HANDI-LAV GUARD" PROTECTOR AS NEEDED TO MEET ADA REQUIREMENTS.
SH-1	SHOWER	1/2	1/2	2	1 1/2	-.-	SHOWER: SYMMONS S-4701-1.5 ALLURA SHOWER SYSTEM WITH PRESSURE BALANCING MIXING VALVE WITH LEVER HANDLE, ADJUSTBABLE STOP SCREW, INTEGRAL SERVICE STOPS AND SHOWER HEAD WITH ARM AND FLANGE AND 1.5 GPM FLOW RATE RESTRICTOR; SMITH FIGURE 2005Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND CHROME PLATED ADJUSTABLE STRAINER HEAD WITH SECURED GRATE.
SH-2	SHOWER	1/2	1/2	2	1 1/2	ADA, HAND SHOWER	SHOWER: SYMMONS 4705 ALLURA SHOWER SYSTEM WITH PRESSURE BALANCING MIXING VALVE WITH LEVER HANDLE, ADJUSTBABLE STOP SCREW, INTEGRAL SERVICE STOPS, SHOWER HEAD WITH ARM AND FLANGE AND 1.5 GPM FLOW RESTRICTOR, LEVER DIVERTER WITH INTEGRAL VOLUME CONTROL, WALL/HAND SHOWER WITH 1.5 GPM FLOW RESTRICTOR, 5' FLEXIBLE METAL HOSE, INLINE BREAKER, WALL CONNECTION AND FLANGE AND 30" SLIDE BAR FOR HAND SHOWER MOUNTING; SMITH FIGURE 2005Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND CHROME PLATED ADJUSTABLE STRAINER HEAD WITH SECURED GRATE.
SS-1	SERVICE SINK	3/4	3/4	3	2	-.-	JANITOR SINK (FLOOR MOUNTED, CORNER): KOHLER K6710, WHITBY, 28 X 28-INCH, ENAMELED CAST IRON FLOOR-MOUNTED CORNER MODEL, K9146-3" DRAIN WITH STRAINER, NO. K8940 REMOVABLE VINYL-COATED RIM GUARD; CHICAGO 897 FAUCET WITH VACUUM BREAKER, SCREWDRIVER STOPS IN SHANKS, 5 FOOT RUBBER HOSE AND WALL HOOK, 853.
EWC-1	ELECTRIC WATER COOLER	3/4	-.-	1 1/2	1 1/2	DUAL HEIGHT, BARRIER FREE	ELECTRIC WATER COOLER (ADA, DUAL LEVEL): ELKAY EZSTL8C WHEELCHAIR ACCESSIBLE, DUAL LEVEL, WALL-MOUNTED COOLER, STAINLESS STEEL BOWLS, AND APRON. ARI CERTIFIED, SELF-CLOSING PUSH BUTTON CONTROL MOUNTED ON FRONT, LEFT AND RIGHT OR UNIT, 1/5 HP COMPRESSOR MOTOR, 9.7 GPH OF 50-DEGREE F WATER; 1-1/2 INCH CAST BRASS CHROME-PLATED P-TRAPS. ADA COMPLIANT.
WB-1	WASHER BOX	1/2	1/2	2	1 1/2	-.-	WASHER BOX: WATER TITE W4700-HA WASHING MACHINE OUTLET BOX WITH WATER HAMMER ARRESTORS, 2" CENTER DRAIN PIPE, 6-1/4" X 8-1/4" X 3-5/8" BOX INSIDE DIMENSIONS, ¼ TURN VALVES WITH ARRESTORS INSTALLED,1/2" SWEAT CONNECTION.
WB-2	WASHER BOX	1/2	1/2	2	1 1/2	-.-	WASHER BOX: WATER TITE W4700-HA WASHING MACHINE OUTLET BOX WITH WATER HAMMER ARRESTORS, BLANK OFF 2" CENTER DRAIN , 6-1/4" X 8-1/4" X 3-5/8" BOX INSIDE DIMENSIONS, ¼ TURN VALVES WITH ARRESTORS INSTALLED,1/2" SWEAT CONNECTION.
ICE-1	WATER OUTLET - ICE MACHINE					-.-	ICE MACHINE OUTLET: WATER TITE W9700 ICE MAKER BOX WITH SINGLE QUARTER TURN ADAPTER BALL VALVE.
HB-1	HOSE BIB	3/4	-.-	-.-	-.-	-.-	HOSE BIBB: ACORN 8121 HOSE VALVE WITH VACUUM BREAKER, 3/4" MALE HOSE THREAD AND LOOSE KEY HANDLE.
NFH-1	NON FREEZE WALL HYDRANT	3/4	-.-	-.-	-.-	-.-	NON-FREEZE HYDRANT: SMITH 5609QT NON-FREEZE WALL HYDRANT FOR WALL THICKNESS SHOWN ON PLAN, BRONZE HYDRANT, 3/4-INCH CONNECTION WITH BRASS CASING, INTEGRAL SELF-DRAINING VACUUM BREAKER, AND LOOSE KEY.
LI-1	LINT INTERCEPTOR	-.-	-.-	4	2	MAIN HOUSEKEEPING	LINT INTERCEPTOR: SMITH 8910-25 STEEL WITH GRAY DUCO COATING AND STAINLESS STEEL LINT SCREENS WITH SECURED AND GASKETED DIAMOND PLATE COVER. UNIT SHALL BE RECESSED AND SHALL BE PROVIDED WITH EXTENSIONS. FIELD VERIFY EXTENSION LENGTHS.
FD-1	FLOOR DRAIN	-.-	-.-	2	2	RESTROOM	FLOOR DRAIN (RESTROOM): SMITH FIGURE 2005Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED GRATE AND DEEP SEAL P-TRAP.
FD-2	FLOOR DRAIN	-.-	-.-	2	2	MECHANICAL ROOM	FLOOR DRAIN (MECHANICAL ROOM): SMITH 2220Y-P050 FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH 8" CAST IRON GRATE AND SEDIMENT BUCKET, NO-HUB CONNECTION; PROVIDE DEEP SEAL P-TRAP.
FD-3	FLOOR DRAIN	-.-	-.-	4	2	MAIN HOUSEKEEPING	FLOOR DRAIN (LAUNDRY TROUGH DRAIN): SMITH FIGURE 2005Y-D FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ADJUSTABLE STRAINER HEAD WITH DOME GRATE AND DEEP SEAL P-TRAP.WITH DOME GRATE.
FS-1	FLOOR SINK	-.-	-.-	2	1 1/2	LAUNDRY & VENDING ROOMS	FLOOR SINK: SMITH 3100Y-12 CAST IRON 8-1/2" SQUARE 6" DEEP RECEPTOR WITH ACID RESISTANT ENAMEL INTERIOR AND NICKEL BRONZE RIM WITH 1/2 GRATE. DEEP SEAL TRAP. DOME SUMP RECEIVER WITH STRAINER. FLASHING COLLAR
FS-2	FLOOR SINK	-.-	-.-	4	2	MECHANICAL ROOM	FLOOR SINK: SMITH 3160Y-11 CAST IRON 12-1/2" SQUARE 10" DEEP RECEPTOR WITH ACID RESISTANT ENAMEL INTERIOR AND NICKEL BRONZE RIM LESS GRATE. DOME SUMP RECEIVER WITH STRAINER. FLASHING COLLAR
FS-3	FLOOR SINK	-.-	-.-	4	2	LAUNDRY & VENDING ROOMS	FLOOR SINK: SMITH 3160Y-13 CAST IRON 12-1/2" SQUARE 10" DEEP RECEPTOR WITH ACID RESISTANT ENAMEL INTERIOR AND NICKEL BRONZE RIM WITH 3/4 GRATE. DOME SUMP RECEIVER WITH STRAINER. FLASHING COLLAR
DD-1	DECK DRAIN	-.-	-.-	3	-.-	L-1 PATIO	DECK DRAIN: ZURN Z-158 10" SQUARE TOP PROMENADE DECK DRAIN WITH HEEL PROOF GRATE. CAST IRON BODY WITH SQUARE ROTATABLE FRAME AND POLISHED BRONZE TOP.
RD-1	ROOF DRAIN	-.-	-.-	-.-	-.-	SEE PLANS FOR SIZE	ROOF DRAIN: SMITH FIGURE 1010Y CAST IRON BODY WITH COMBINED FLASHING CLAMP AND CAST IRON GRAVEL STOP, CAST IRON DOME, SUMP RECEIVER AND UNDERDECK CLAMP.
RD-2	ROOF DRAIN	-.-	-.-	-.-	-.-	SEE PLANS FOR SIZE	ROOF DRAIN: SMITH FIGURE 1540Y CAST IRON BODY WITH COMBINED FLASHING CLAMP, USED AT ROOF/PARAPET JUNCTION, FLUSH GRATE WITH 45O OUTLET DRAIN.
RDO-1	ROOF DRAIN OVERFLOW	-.-	-.-	-.-	-.-	SEE PLANS FOR SIZE	ROOF DRAIN OVERFLOW: SMITH FIGURE 1080Y CAST IRON BODY WITH COMBINED FLASHING CLAMP AND CAST IRON GRAVEL STOP, CAST IRON DOME, 2" HIGH WATER COLLAR, SUMP RECEIVER AND UNDERDECK CLAMP.
DSN-1	DOWNSPOUT NOZZLE	-.-	-.-	-.-	-.-	SEE PLANS FOR SIZE	DOWNSPOUT NOZZLE: SMITH 1770 DOWNSPOUT NOZZLE WITH CAST BRONZE BODY AND FLANGE.

1. ALL UNDER GROUND WASTE AND VENT SHALL BE 2" OR GREATER PER DRAWINGS.

DOMESTIC PUMP SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID FLOW RATE (GPM)	FLUID WORKING FLUID	FLUID HEAD LOSS (FT)	PUMP CONSTRUCTION	ELECTRICAL MOTOR SIZE (HP/W)	ELECTRICAL MOTOR SPEED (RPM)	ELECTRICAL VOLT/PH/HZ	NOTES
CP-1	B&G 90 1 1/4AA	MECHANICAL ROOM	CIRCULATION	30	120 DOMESTIC HOT WATER	20	BRONZE	1/3/-.-	1750	120/1/60	-.-
CP-2	GRUNDFOS MAGNA 40-120 FN	MECHANICAL ROOM	CIRCULATION	36	SOLAR HEATING WATER	28	BRONZE	-.-/450	-.-	230/1/60	1
CP-3	GRUNDFOS MAGNA 32-100 FN	MECHANICAL ROOM	CIRCULATION	20	SOLAR HEATED WATER	15	BRONZE	-.-/180	-.-	230/1/60	1
CP-4	B&G PL-30	MECHANICAL ROOM	CIRCULATION	2	140 DOMESTIC HOT WATER	18	BRONZE	1/12/-.-	2850	120/1/60	-.-
BP-1	GRUNDFOS MPC-E 2 CRE 32-2-2 7.5HP 3X460V	MECHANICAL BLDG	BOOSTER	170	DOMESTIC COLD WATER	80	STAINLESS STEEL	7.5/-.-	3467	460/3/60	2,3
BP-2	GRUNDFOS MPC-E 2 CRE 32-2-2 7.5HP 3X460V	MECHANICAL BLDG	BOOSTER	170	DOMESTIC COLD WATER	80	STAINLESS STEEL	7.5/-.-	3467	460/3/60	2,3

1. THIS PUMP IS PART OF ALTERNATE #3.
2. PUMP PROVIDED WITH VFD.
3. SKID MOUNTED PUMP PACKAGE WITH CONTROLLER.

THERMOSTATIC MIXING VALVE

SYMBOL	MANUF. AND MODEL NO.	LOCATION	LEAVING TEMP (DEG F)	MIN FLOW (GPM)	MAX FLOW (GPM)	PRESS DROP @ MAX FLOW (PSI)	INLET SIZE (IN)	OUTLET SIZE (IN)	REMARKS
TMV-1	LEONARD TM-2020-2P-TC	MECH ROOM	120	1	100	20	2	2	1

1. VALVE ASSEMBLY SHALL BE ASSE 1017 LISTED.

DOMESTIC EXPANSION TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	WORKING FLUID	PHYSICAL TANK SIZE (GAL)	PHYSICAL RELIEF VALVE (PSIG)	PHYSICAL DIA./ HEIGHT (IN)	PHYSICAL NPT FITTING (IN)	NOTES
DET-1	AMTROL ST-80V	MECHANICAL ROOM	BUTYL DIAPHRAGM	DOMESTIC HOT WATER	44	125	26/36	1 1/4	1
DET-2	AMTROL ST-200L	MECHANICAL BLDG.	BUTYL DIAPHRAGM	DOMESTIC WATER	53	125	24/41	1	1

1. TANK LINER SUITABLE FOR POTABLE WATER

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
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UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84065

PLUMBING SCHEDULES

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
CHECKED BY: BW
PROJECT NO.: 11007
DATE: 02/15/2013
DRAWING NO.: P601

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DOMESTIC PRV SCHEDULE

ID	MANUF. AND MODEL NO.	LOCATION	SERVICE	TYPE	CAPACITY (GPM)	INLET PRESSURE (PSIG)	OUTLET PRESSURE (PSIG)	SIZE (IN)	NOTES
PRV-1	WATTS ACV 115-2	MECH BLDG.	DOMESTIC WATER	PILOT	147	60	55	2	1
PRV-2	WATTS ACV 115-2	MECH BLDG.	DOMESTIC WATER	PILOT	60	60	60	1 1/4	2

1. PRV SIZED FOR 2/3 TOTAL SYSTEM CAPACITY
2. PRV SIZED FOR 1/3 TOTAL SYSTEM CAPACITY

DOMESTIC HOT WATER SOLAR HEATING SYSTEM

ID	PANEL MANUFACTURER AND MODEL NUMBER	EQUIPMENT DESCRIPTION	LOCATION	CLEAR DAY PANEL BTU/DAY	PANELS PER ARRAY	PANEL FLOW RATE GPM	VOLUME PER PANEL GAL	PANEL SIZE (FT x FT)	COLLECTOR AREA/PANEL (FT2)	PANEL WEIGHT (LBS)	TANK SIZE (GAL)	HEIGHT/ DIAMETER (IN)	NOTES
SPA-1	HTP FP-27SC	SOLAR PANEL ARRAY	SOUTH WING ROOF	22,900	6	1.0	0.9	4 x 6.5	25.35	90	-.-	-.-	1
DBT-1	HTP SSU-119DBX	DRAIN BACK TANK	MECH. RM.	-.-	-.-			-.-	-.-	-.-	119	73/27	1
DBT-2	HTP SSU-119DBX	DRAIN BACK TANK	MECH. RM.	-.-	-.-			-.-	-.-	-.-	119	73/27	1

1. THIS EQUIPMENT IS PART OF ALTERNATE #3. 1

HOT WATER STORAGE TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	SERVICE	CAPACITY (GAL)	WORKING PRESSURE (PSI)	DIAMETER/ LENGTH (IN)	NOTES
ST-1	AO SMITH TJVT-500	DOMESTIC HOT WATER	500	125	48/100	-.-
ST-2	AO SMITH TJVT-500	DOMESTIC HOT WATER	500	125	48/100	-.-
ST-3	AO SMITH TJVT-500	DOMESTIC HOT WATER	500	125	48/100	1

1. THIS STORAGE TANK IS PART OF ALTERNATE #3. 1

GAS FIRED WATER HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	SERVICE	INPUT LOAD (BTUH)	EFFICIENCY (%)	TYPE	RECOVERY RATE @ 90 F DELTA T	FLUE SIZE (IN)	COMBUSTION AIR SIZE (IN)	LENGTH/ WIDTH/ HEIGHT (IN)	STORAGE TANK	ELECTRICAL AMP	ELECTRICAL V/PH	NOTES
WH-1	AO SMITH VW-1000	DOMESTIC HOT WATER	1,000,000	88	GAS FIRED BOILER	1127	6	4	38/30/71	ST-1A	30	120/1	1,2
WH-2	AO SMITH VW-500	DOMESTIC HOT WATER	500,000	88	GAS FIRED BOILER	563	6	4	38/30/56	ST-1B	30	120/1	1,3

1. WATER HEATER TO BE SUPPLIED WITH FACTORY MOUNTED, SIZED AND WIRED ALL BRONZE CIRCULATING PUMP.
2. PUMP SHALL BE 56 GPM 120V/1PH WITH 3 FEET HEAD.
3. PUMP SHALL BE 28 GPM 120V/1PH WITH 2 FEET HEAD.

WATER SOFTENER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	TOTAL (GRAINS)	WATER* FLOW/UNIT @ 7 PSI LOSS	BACKWASH FLOW RATE (GPM)	RESIN QUANTITY (FT^3)	RESIN TANK HGHT/DIA (IN/IN)	BRINE TANK HGHT/DIA (IN/IN)	ELECTRICAL (VOLT/PH)	NOTES
WS-1	WATER SPECIALTIES A959TA-300	MECH. BLDG.	PROGRESSIVE ALTERNATING	300,000	158	20	10	72/30	48/39	120/1	1,2

1. PACKAGED EQUIPMENT.
2. SET CONTROLLER TO BRING SECOND TANK ONLINE AT 60 GPM.

*BOTH UNITS ONLINE.

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PLUMBING SCHEDULES

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
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PROJECT NO.: 11007
DRAWING NO.: P602
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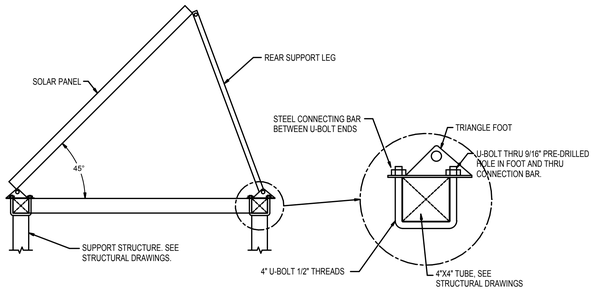
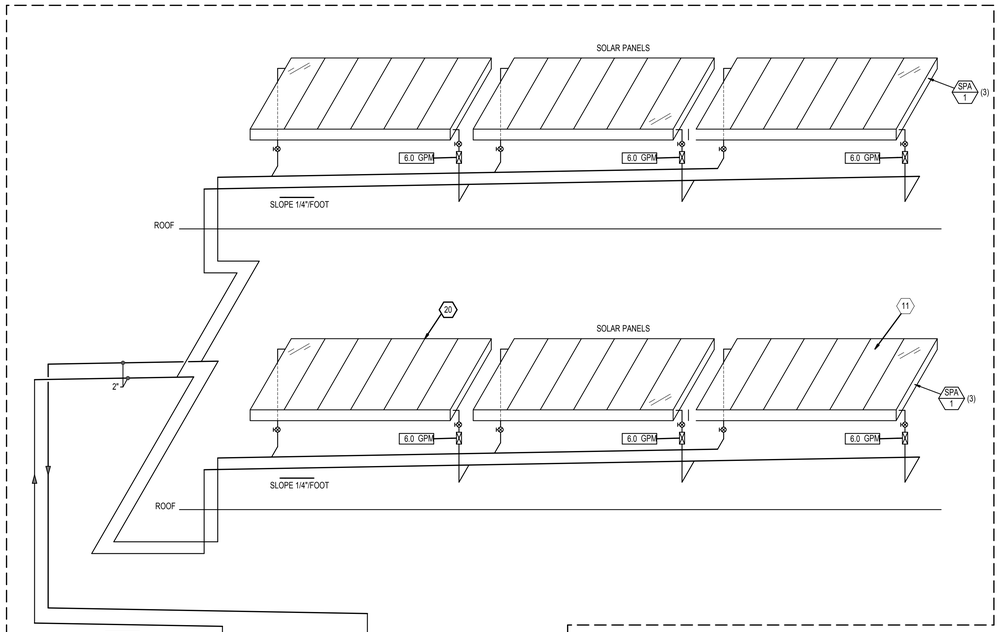
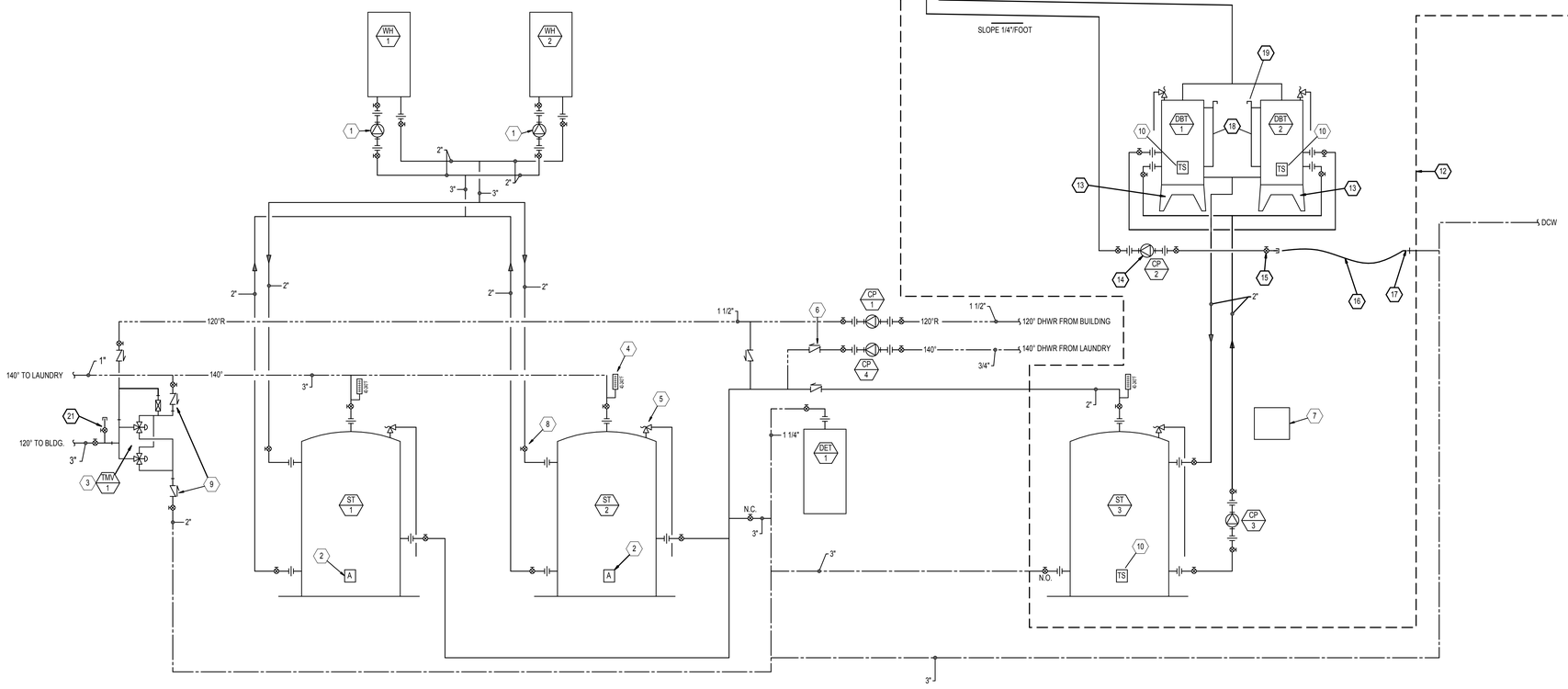


SOLAR COLLECTOR SUPPORT DETAIL

NO SCALE





DOMESTIC HOT WATER SYSTEM SCHEMATIC

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KEYED NOTES

1. PUMPS SUPPLIED WITH HOT WATER HEATERS.
2. AQUASTAT, TIED TO BOILER PUMP.
3. THERMOSTATIC MIXING VALVE, SEE SCHEDULE.
4. THERMOMETER, PROVIDE RANGE AS INDICATED, TYPICAL.
5. RELIEF VALVE, TYPICAL.
6. CHECK VALVE, TYPICAL.
7. SOLAR HOT WATER SYSTEM CONTROLLER, PROVIDED WITH SYSTEM.
8. BALL VALVE, TYPICAL ON SIZES 2" AND BELOW.
9. PROVIDE INLINE CHECK VALVES IN SUPPLIES TO MIXING VALVE IN ADDITION TO INTEGRAL CHECKS PROVIDED WITH THE VALVE.
10. TEMPERATURE SENSOR, COORDINATE WITH SYSTEM SUPPLIER.
11. SOLAR PANEL ARRAY ON ROOF, TYPICAL.
12. ALL EQUIPMENT SHOWN WITHIN DASHED LINE IS ALTERNATE #3. 3
13. 2' TALL TANK STAND.
14. PUMP TO BE INSTALLED 1' BELOW BOTTOM OF DRAINBACK TANK.
15. ¾" FULL PORT BALL VALVE FOR SYSTEM FILL. PROVIDE HOSE THREAD CONNECTION AND CAP
16. ¾" RUBBER HOSE FOR SYSTEM FILL.
17. ¾" HOSE BIBB.
18. SIGHT GLASS.
19. AIR VENT, TYPICAL.
20. INDIVIDUAL PANELS CONNECTED IN PANEL ARRAY WITH UNIONS. TYPICAL.
21. 1" TEST PORT FOR WITH BALL VALVE AND CAP FOR SYSTEM SET UP.

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DOMESTIC HOT WATER SYSTEM SCHEMATIC

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR
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PROJECT NO.: 11007
DRAWING NO.: P701
DATE: 02/15/2013

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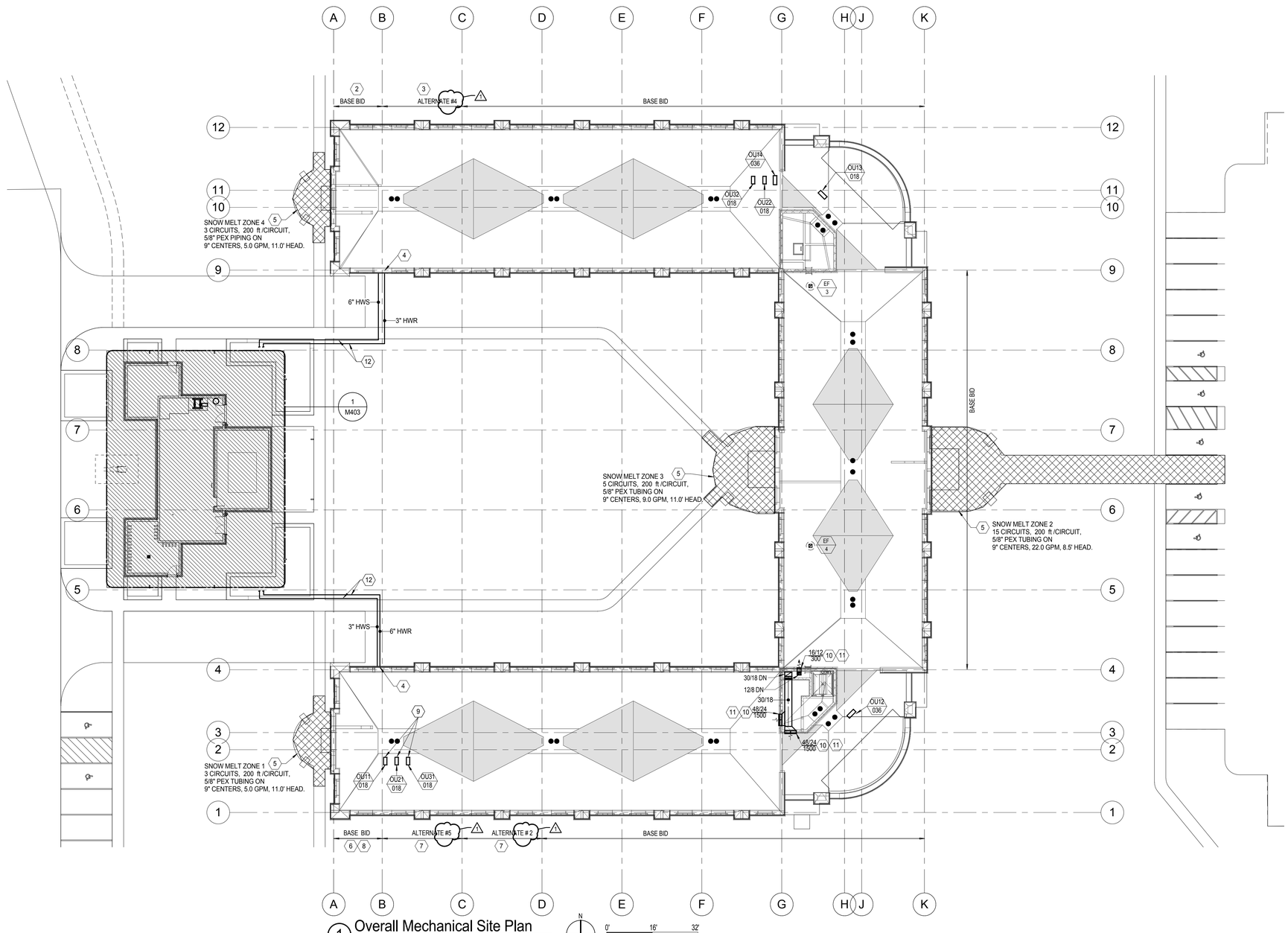

1 Overall Mechanical Site Plan
SCALE: 1/16" = 1'-0"

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GENERAL NOTES

1. PROVIDE BALANCING DAMPERS AT EACH BRANCH TAKE OFF TO SERVE DIFFUSER OR GRILLE AS WELL AS WHERE INDICATED.

2. COORDINATE EXACT LOCATION OF DUCTS WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING, CABLE TRAY, PLUMBING, MECHANICAL PIPING, ETC.

3. BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE NECK SIZE OF THE DIFFUSER, REGISTER OR GRILLE IT SERVES UNLESS NOTED OTHERWISE.

4. INSTALL EQUIPMENT WITH CLEARANCE PER MANUFACTURER'S RECOMMENDATIONS. MAINTAIN PROPER SPACE FOR COIL PULL, CONTROLS, AND MAINTENANCE ACCESS.

5. INSTALL TURNING VANES IN ALL SQUARE AND RECTANGULAR LOW PRESSURE DUCTWORK.

6. DO NOT ROUTE DUCTS OR PIPES ABOVE ELECTRICAL PANELS. DO NOT ROUTE DUCTS OR PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.

7. PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, VAV BOXES, FIRE DAMPERS, ETC, ARE LOCATED ABOVE INACCESSIBLE CEILINGS.

8. ALL WALL/FLOOR PENETRATIONS WITH PIPES, DUCTS, ETC. NEED TO MAINTAIN THE REQUIRED FIRE RATING.

SHEET KEYNOTES

1 SHADING INDICATES EXTENT OF SNOWMELT AREA.

2 IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

3 ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

4 BASED ON WHICH ALTERNATES ARE INCLUDED IN THE PROJECT, EXTEND PIPING AS NEEDED TO ENTER THE BUILDING IN THE CHASE TO THE EAST OF THE STAIR.

5 HATCHING INDICATES EXTENT OF SNOWMELT ZONE.

6 IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

7 ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

8 IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

9 EQUIPMENT IS TO BE INCLUDED IN THE BASE BID AND IS TO MOVE AS NEEDED DEPENDING ON WHICH ALTERNATES ARE INCLUDED IN THE PROJECT.

10 LOUVER TO BE SIZE SHOWN, SEE SPECIFICATIONS.

11 LOUVER TO BE LOCATED, 18" MINIMUM ABOVE LOWER ROOF SURFACE.

12 COORDINATE EXACT ROUTING WITH CIVIL PLANS.

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OVERALL MECHANICAL SITE PLAN

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY GR	CHECKED BY BW
PROJECT NO. 11007	DRAWING NO. M100
DATE 02/15/2013	

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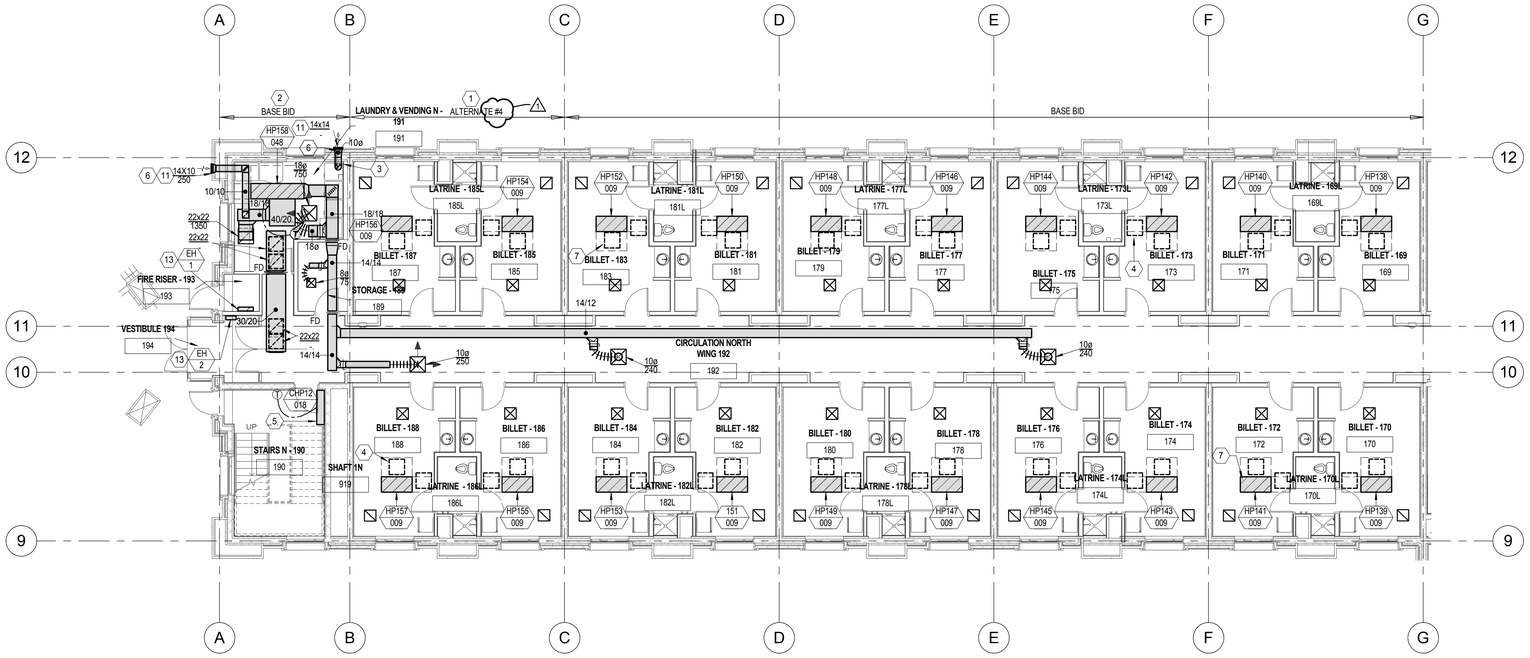
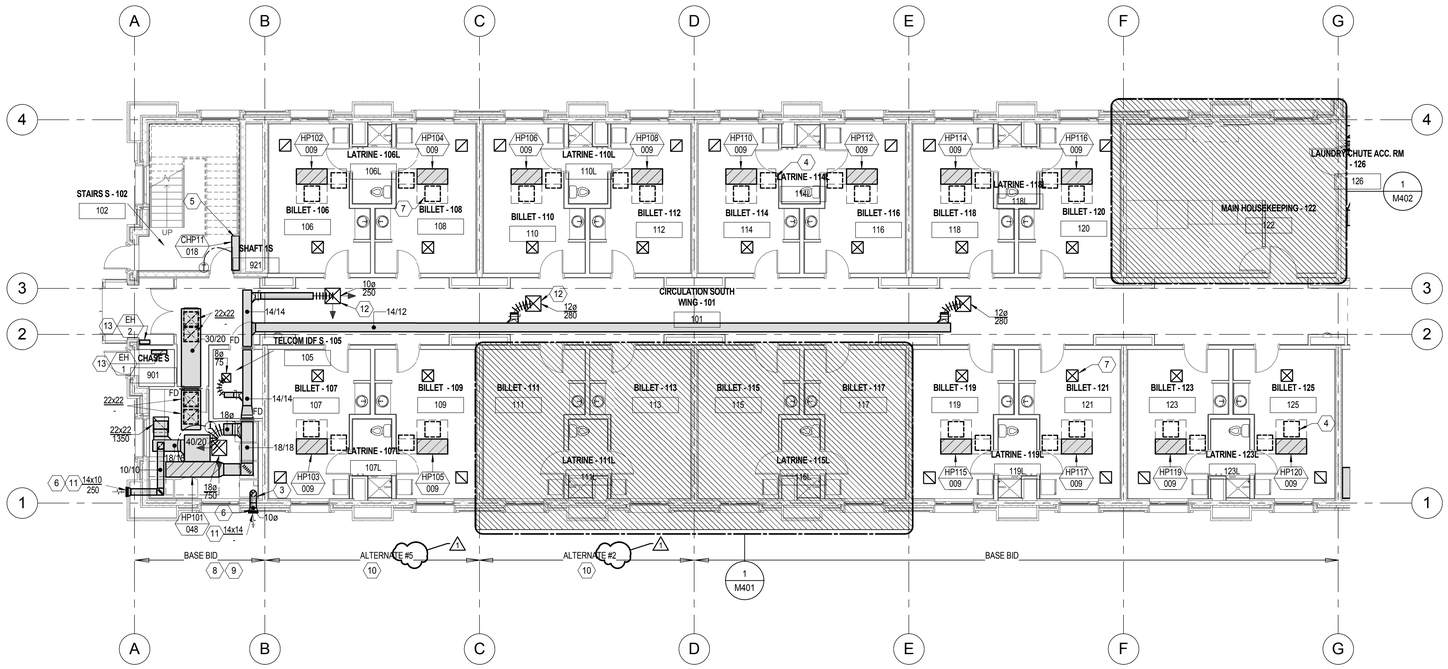


1 First Level Mechanical Plan - North Wing
SCALE: 1/8" = 1'-0"



2 First Level Mechanical Plan - South Wing
SCALE: 1/8" = 1'-0"

[redacted]

KEY PLAN

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GENERAL NOTES

1. PROVIDE BALANCING DAMPERS AT EACH BRANCH TAKE OFF TO SERVE DIFFUSER OR GRILLE AS WELL AS WHERE INDICATED.
2. COORDINATE EXACT LOCATION OF DUCTS WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING, CABLE TRAY, PLUMBING, MECHANICAL PIPING, ETC.
3. BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE NECK SIZE OF THE DIFFUSER, REGISTER OR GRILLE IT SERVES UNLESS NOTED OTHERWISE.
4. INSTALL EQUIPMENT WITH CLEARANCE PER MANUFACTURER'S RECOMMENDATIONS. MAINTAIN PROPER SPACE FOR COIL PULL, CONTROLS, AND MAINTENANCE ACCESS.
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6. DO NOT ROUTE DUCTS OR PIPES ABOVE ELECTRICAL PANELS. DO NOT ROUTE DUCTS OR PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
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8. ALL WALL/FLOOR PENETRATIONS WITH PIPES, DUCTS, ETC. NEED TO MAINTAIN THE REQUIRED FIRE RATING.

SHEET KEYNOTES

1. ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
2. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
3. EXHAUST DUCT TO DROP TO DRYER CONNECTION. COORDINATE EXACT CONNECTION WITH EQUIPMENT.
4. 24" X 24" ACCESS PANEL. TYPICAL UNLESS NOTED OTHERWISE.
5. CONSOLE HEAT PUMP TO BE MOUNTED 8" AFF.
6. TOP OF GRILLE TO BE 11'-2" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECTURAL PLANS.
7. EQUIPMENT AND GRILLES SHOWN FOR REFERENCE. SEE TYPICAL BILLET ENLARGED PLAN FOR EXACT LOCATIONS, TYPICAL.
8. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
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10. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
11. LOUVER TO BE SIZE SHOWN, SEE SPECIFICATIONS.
12. DIFFUSER IS TO BE INCLUDED IN THE BASE BID AND IS TO MOVE AS NEEDED DEPENDING ON WHICH ALTERNATES ARE INCLUDED IN THE PROJECT.
13. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT.

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FIRST LEVEL MECHANICAL PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY GR	CHECKED BY BW
PROJECT NO. 11007	DRAWING NO. M101A
DATE 02/15/2013	

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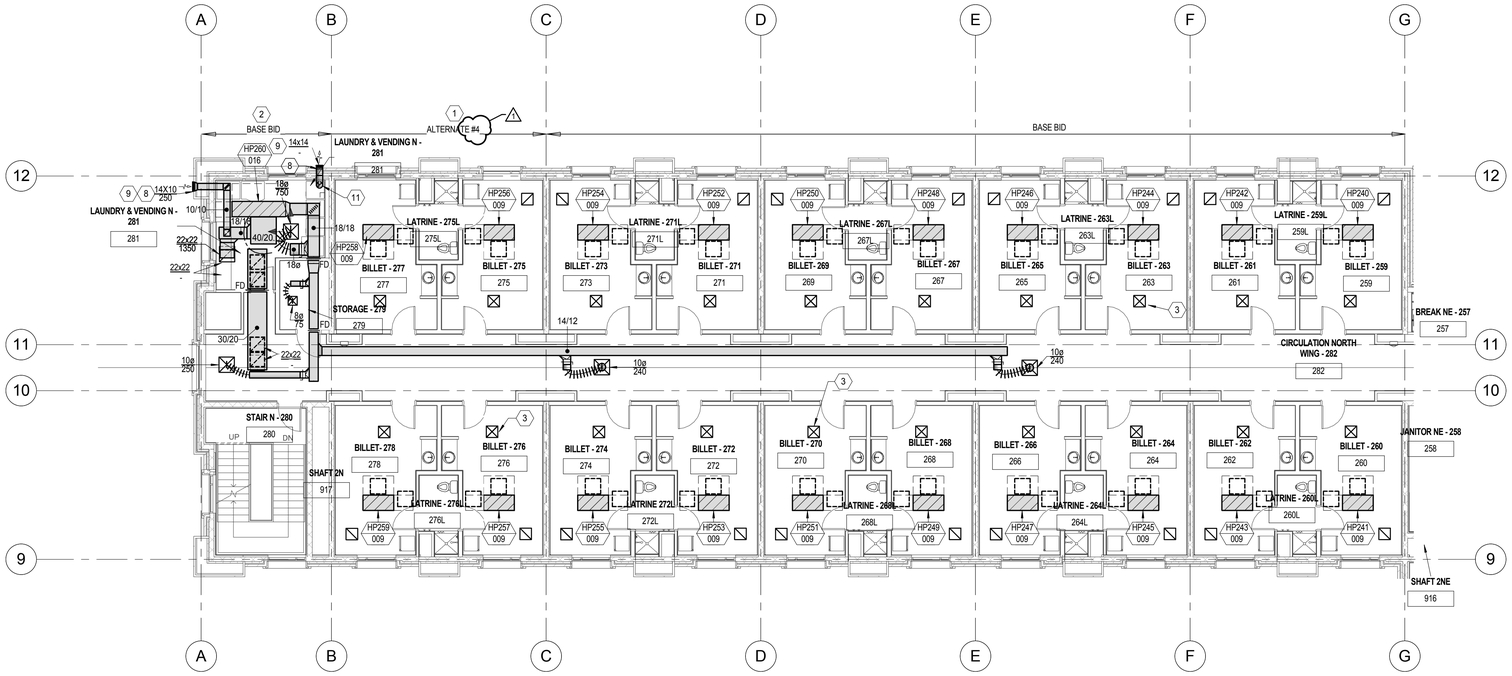
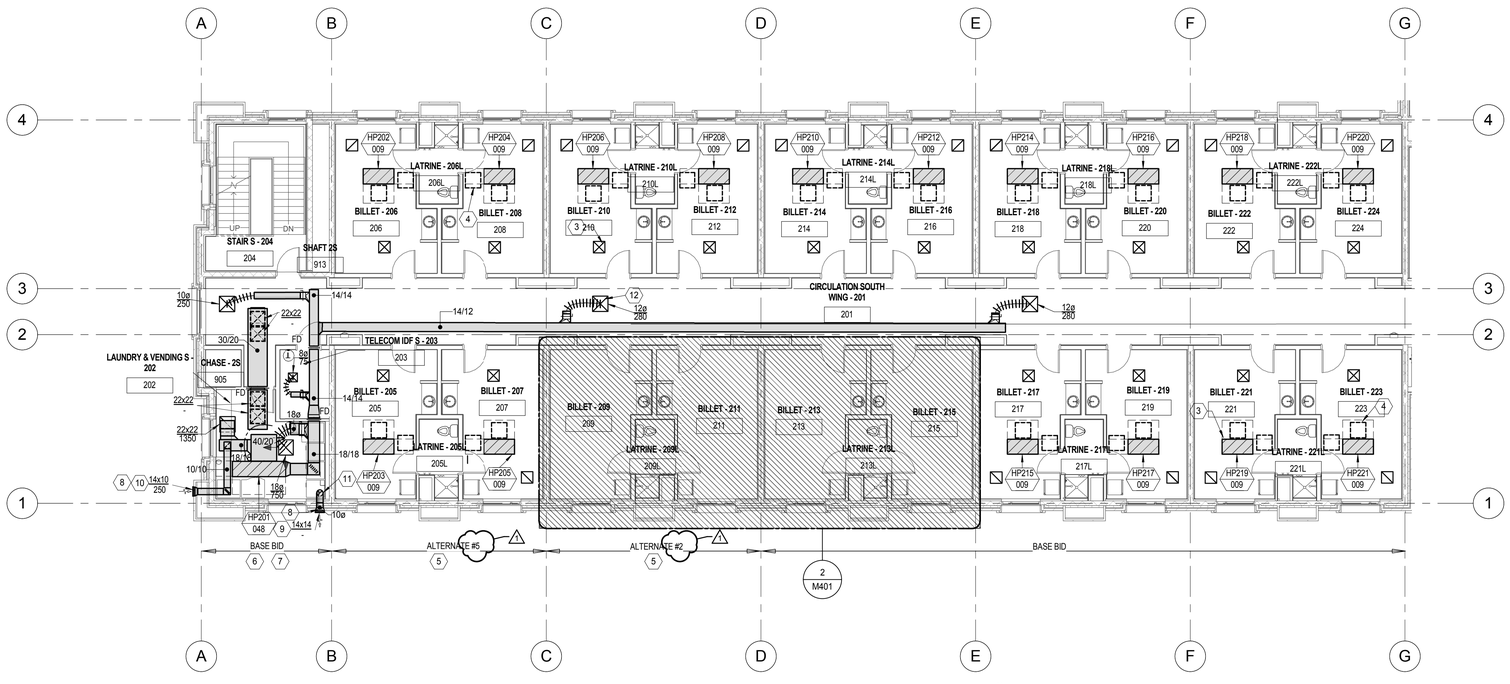


1 Second Level Mechanical Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Second Level Mechanical Plan - South Wing
SCALE: 1/8" = 1'-0"

KEY PLAN

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GENERAL NOTES

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SHEET KEYNOTES

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8. TOP OF GRILLE TO BE 11'-2" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECTURAL PLANS.
9. LOUVER TO BE SIZE SHOWN, SEE SPECIFICATIONS.
10. LOUVER TO BE LOCATED, 18" MINIMUM ABOVE LOWER ROOF SURFACE.
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SECOND LEVEL MECHANICAL PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR	CHECKED BY: BW
PROJECT NO.: 11007	DRAWING NO.: M102A
DATE: 02/15/2013	

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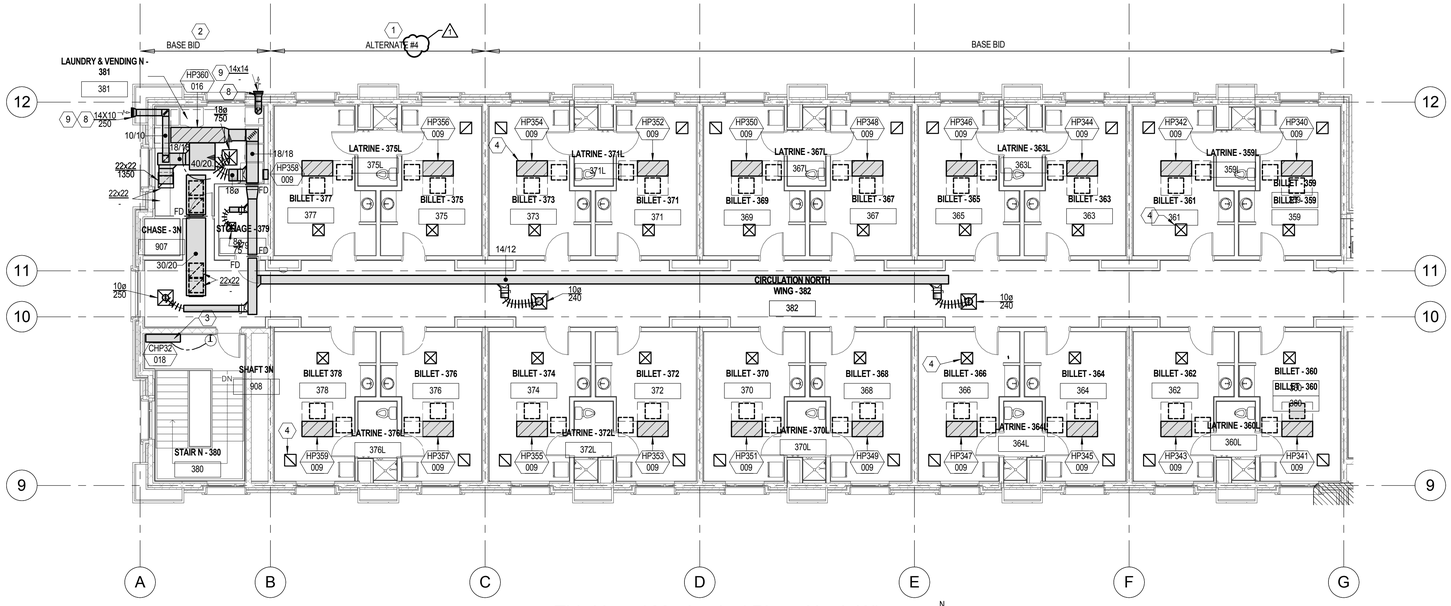
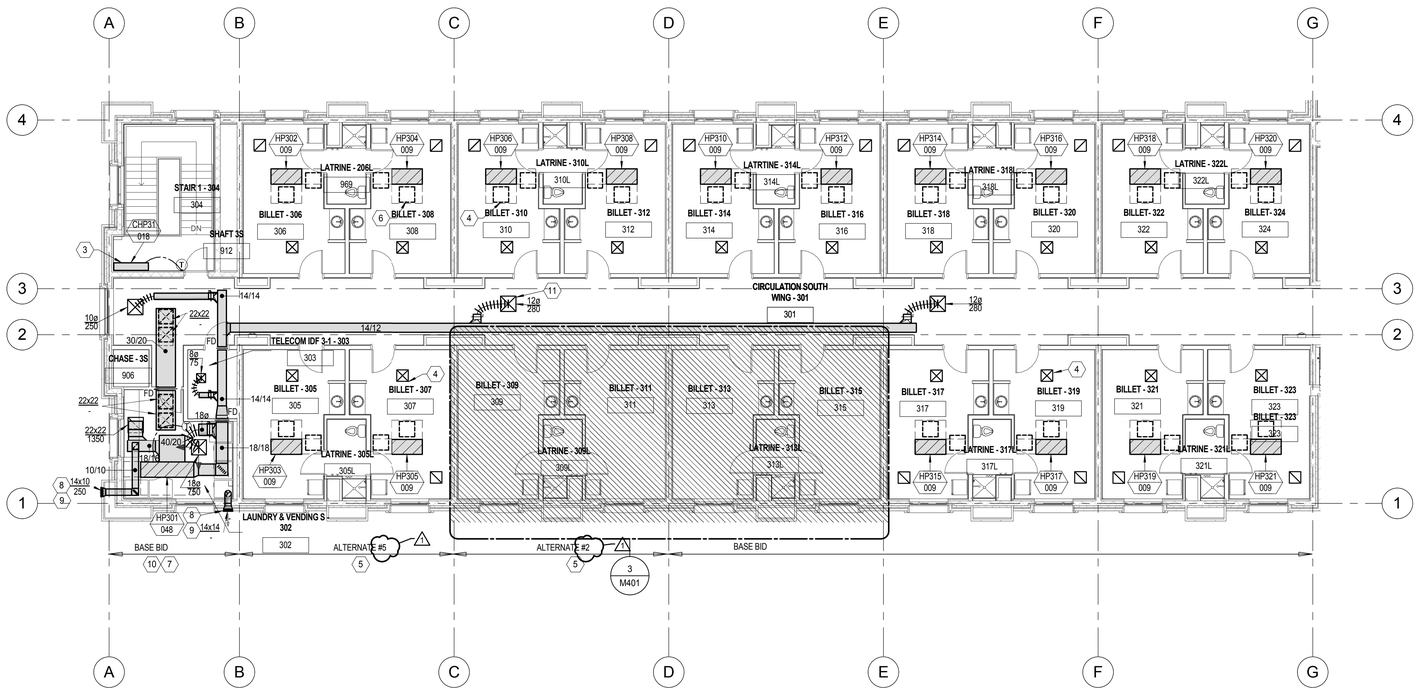


1 Third Level Mechanical Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Third Level Mechanical Plan - South Wing
SCALE: 1/8" = 1'-0"

[redacted]

KEY PLAN

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GENERAL NOTES

1. PROVIDE BALANCING DAMPERS AT EACH BRANCH TAKE OFF TO SERVE DIFFUSER OR GRILLE AS WELL AS WHERE INDICATED.
2. COORDINATE EXACT LOCATION OF DUCTS WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING, CABLE TRAY, PLUMBING, MECHANICAL PIPING, ETC.
3. BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE NECK SIZE OF THE DIFFUSER, REGISTER OR GRILLE IT SERVES UNLESS NOTED OTHERWISE.
4. INSTALL EQUIPMENT WITH CLEARANCE PER MANUFACTURER'S RECOMMENDATIONS. MAINTAIN PROPER SPACE FOR COIL PULL, CONTROLS, AND MAINTENANCE ACCESS.
5. INSTALL TURNING VANES IN ALL SQUARE AND RECTANGULAR LOW PRESSURE DUCTWORK.
6. DO NOT ROUTE DUCTS OR PIPES ABOVE ELECTRICAL PANELS. DO NOT ROUTE DUCTS OR PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
7. PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, VAV BOXES, FIRE DAMPERS, ETC, ARE LOCATED ABOVE INACCESSIBLE CEILINGS.
8. ALL WALL/FLOOR PENETRATIONS WITH PIPES, DUCTS, ETC. NEED TO MAINTAIN THE REQUIRED FIRE RATING.

SHEET KEYNOTES

1. ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
2. IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
3. CONSOLE HEAT PUMP TO BE MOUNTED 8" AFF.
4. EQUIPMENT AND GRILLES SHOWN FOR REFERENCE. SEE TYPICAL BILLET ENLARGED PLAN FOR EXACT LOCATIONS, TYPICAL.
5. ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.
6. 24" X 24" ACCESS PANEL. TYPICAL UNLESS NOTED OTHERWISE.
7. IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.
8. TOP OF GRILLE TO BE 11'-2" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECTURAL PLANS.
9. LOUVER TO BE SIZE SHOWN. SEE SPECIFICATIONS.
10. IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.
11. DIFFUSER IS TO BE INCLUDED IN THE BASE BID AND IS TO MOVE AS NEEDED DEPENDING ON WHICH ALTERNATES ARE INCLUDED IN THE PROJECT.

BUILDING OFFICIAL APPROVAL

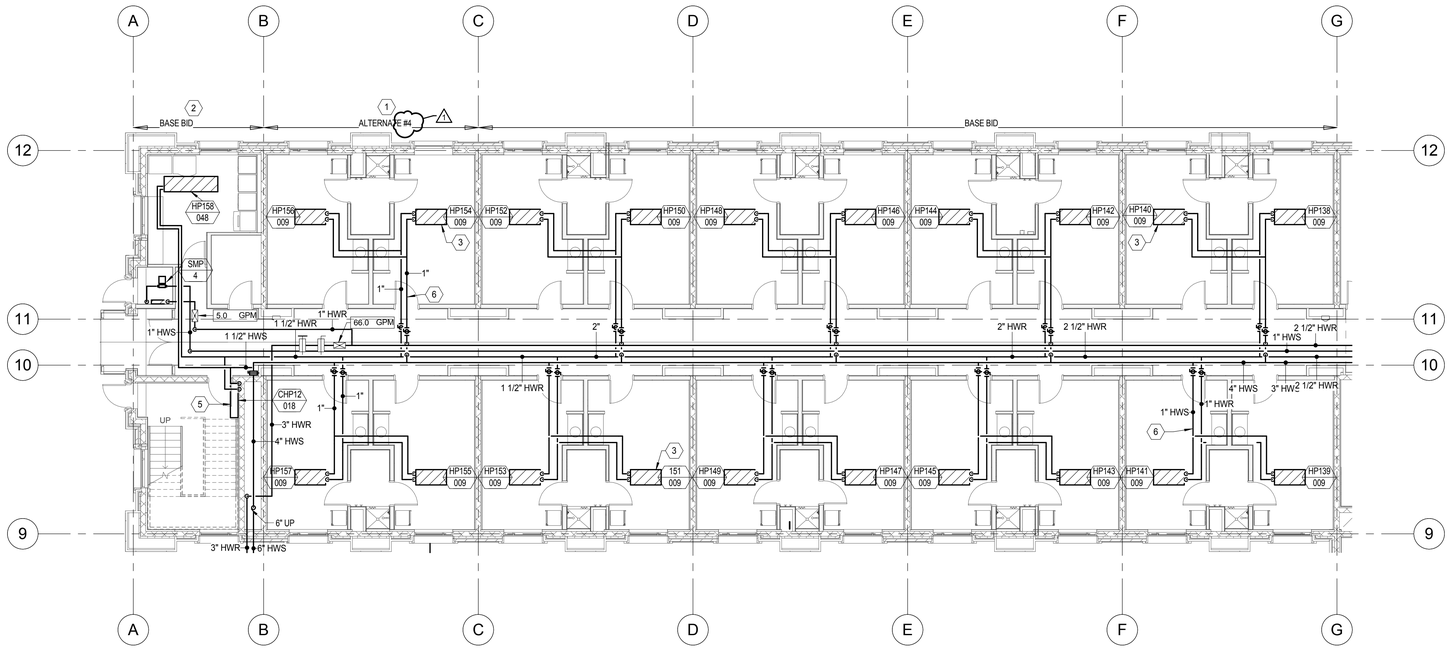
UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED QUARTERS
RIVERTON, UT 84065

THIRD LEVEL MECHANICAL PLAN - NORTH & SOUTH WINGS

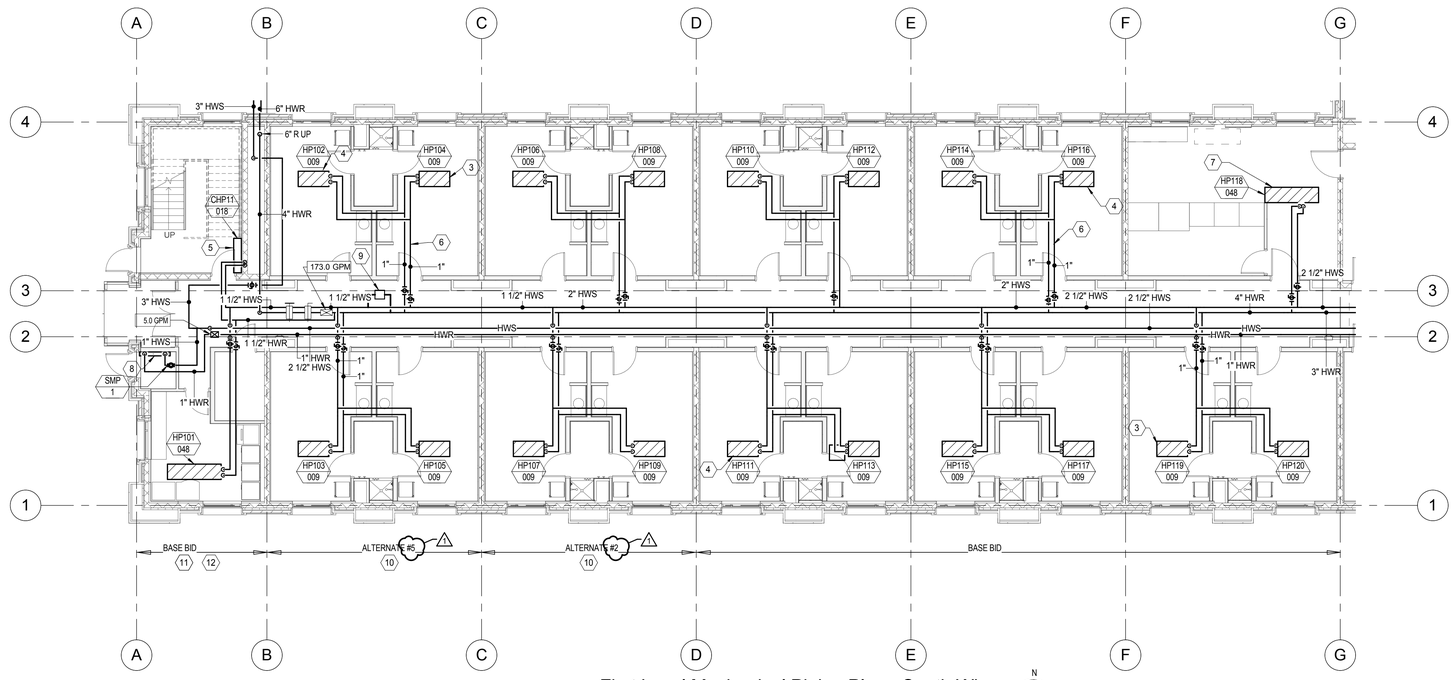
REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR	CHECKED BY: BW
PROJECT NO.: 11007	DRAWING NO.: M103A
DATE: 02/15/2013	

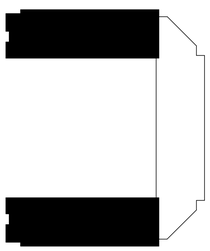
UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



1 First Level Mechanical Piping Plan - North Wing
SCALE: 1/8" = 1'-0"



2 First Level Mechanical Piping Plan - South Wing
SCALE: 1/8" = 1'-0"



KEY PLAN

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

PROFESSIONAL ENGINEER 7705747-2202 BRADLEY W. WELCH STATE OF UTAH 11-12-13

VAN BOERUM & FRANK ASSOCIATES, INC.
CONSULTING ENGINEERS
WWW.VBFA.COM
Salt Lake City • Logan • St. George • Tempe
330 South 300 East 801.530.3148 T
Salt Lake City, UT 84111 801.530.3150 F
VBFA Project Number: 11038

GENERAL NOTES

1. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY ALL ROUTING AND COORDINATE WITH ALL OTHER TRADES.
2. INSTALL MANUAL AIR VENTS AT ALL HYDRONIC SYSTEM HIGH POINTS.
3. MECHANICAL PIPING TO BE INSTALLED ABOVE DUCTWORK AND EQUIPMENT EXCEPT WHERE SHOWN.
4. FIELD VERIFY ALL EQUIPMENT LOCATIONS.

SHEET KEYNOTES

1 ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

2 IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

3 ROUTE CONDENSATE LINE TO BILLET SINK TAILPIECE, TYPICAL FOR ALL BILLET HEAT PUMPS.

4 EQUIPMENT AND GRILLES SHOWN FOR REFERENCE. SEE TYPICAL BILLET ENLARGED PLAN FOR EXACT LOCATIONS, TYPICAL.

5 PROVIDE UNIT WITH CONDENSATE PUMP. ROUTE PUMPED CONDENSATE LINE TO FLOOR SINK IN LAUNDRY & VENDING ROOM.

6 PIPE SIZE TYPICAL FOR BRANCH SERVING TWO BILLET HEAT PUMPS.

7 ROUTE CONDENSATE LINE TO TRENCH BEHIND LAUNDRY EQUIPMENT.

8 SNOWMELT ZONE HEADER.

9 DIFFERENTIAL PRESSURE TRANSMITTER.

10 ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

11 IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

12 IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

BUILDING OFFICIAL APPROVAL

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RIVERTON, UT 84065

FIRST LEVEL MECH PIPING PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY: GR	CHECKED BY: BW
PROJECT NO.: 11007	DRAWING NO.: MP101A
DATE: 02/15/2013	

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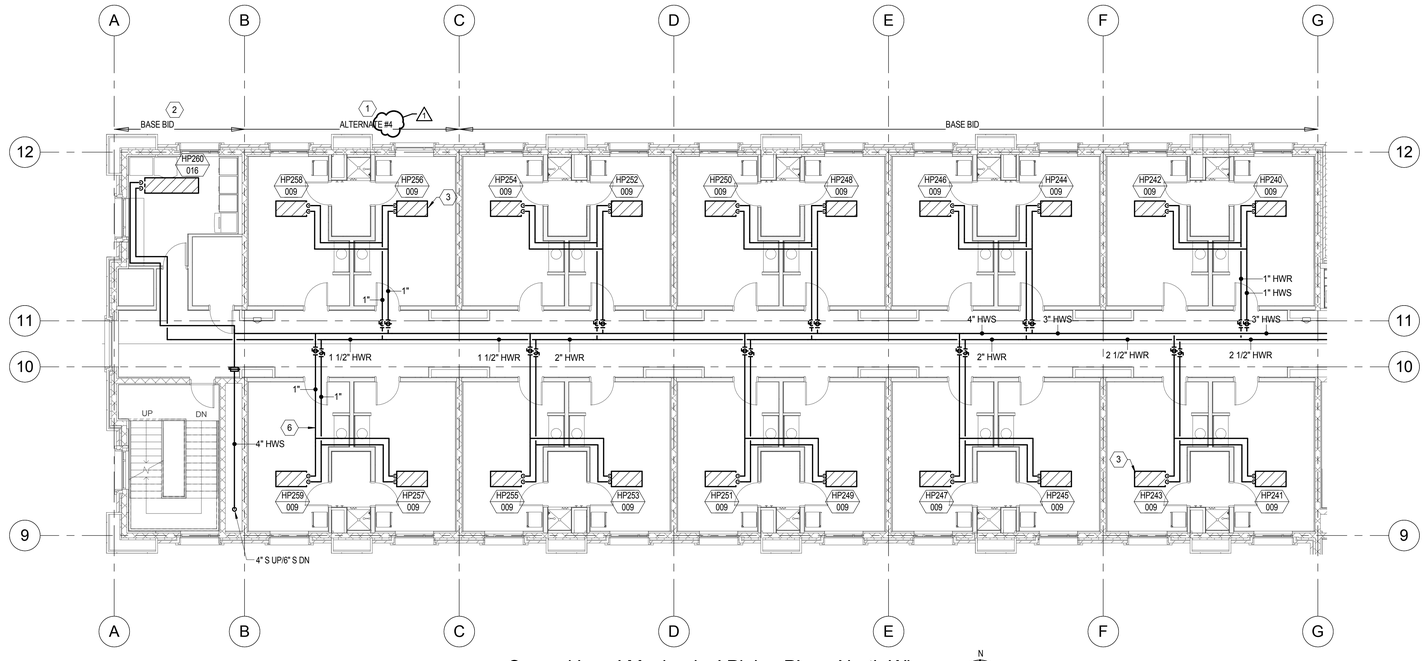
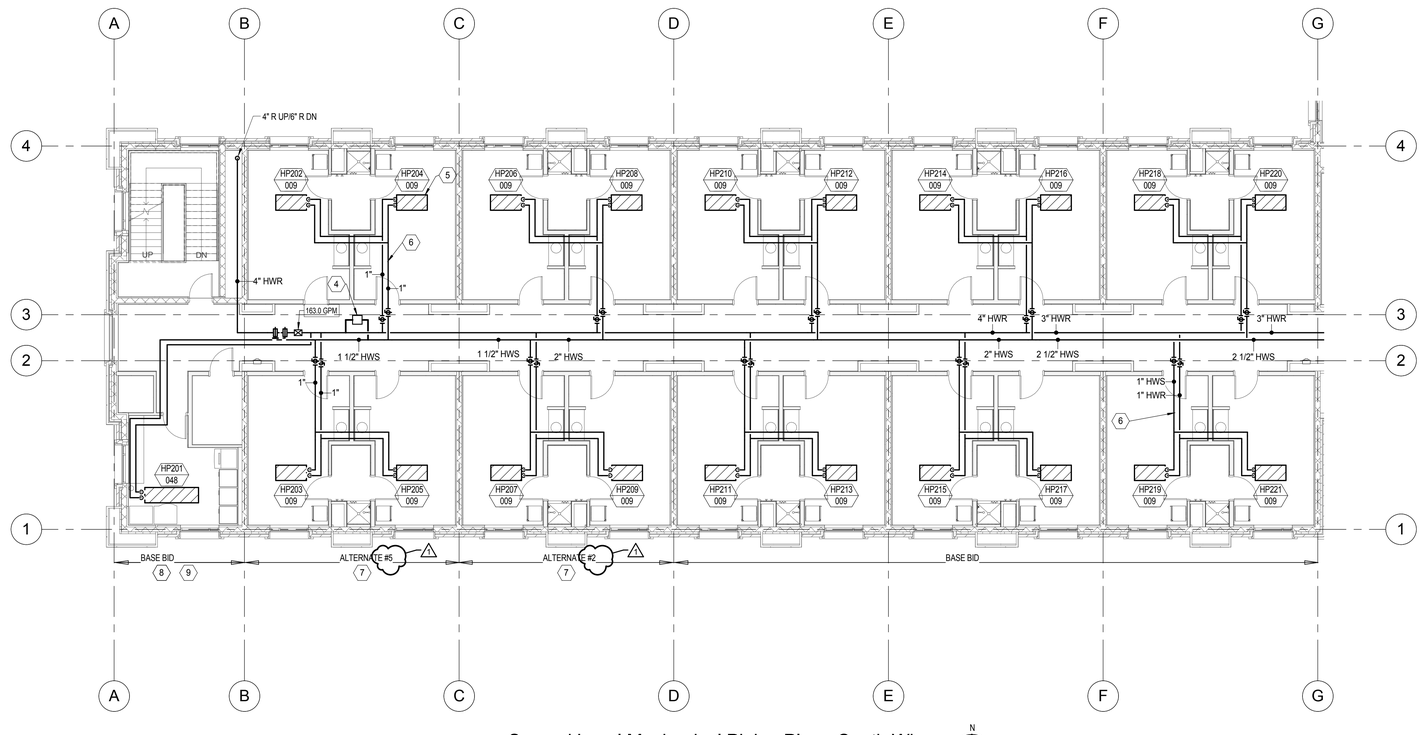


1 Second Level Mechanical Piping Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Second Level Mechanical Piping Plan - South Wing
SCALE: 1/8" = 1'-0"

[redacted]

KEY PLAN

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

PROFESSIONAL ENGINEER 7705747-2202 BRADLEY J. WELCH 11-12-12 STATE OF UTAH

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Salt Lake City, UT 84111 801.530.3150 F
VBFA Project Number: 11038

GENERAL NOTES

1. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY ALL ROUTING AND COORDINATE WITH ALL OTHER TRADES.
2. INSTALL MANUAL AIR VENTS AT ALL HYDRONIC SYSTEM HIGH POINTS.
3. MECHANICAL PIPING TO BE INSTALLED ABOVE DUCTWORK AND EQUIPMENT EXCEPT WHERE SHOWN.
4. FIELD VERIFY ALL EQUIPMENT LOCATIONS.

SHEET KEYNOTES

1 ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

2 IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

3 ROUTE CONDENSATE LINE TO BILLET SINK TAILPIECE, TYPICAL FOR ALL BILLET HEAT PUMPS.

4 DIFFERENTIAL PRESSURE TRANSMITTER.

5 ROUTE CONDENSATE LINE TO FLOOR SINK NEAR ICE MACHINE.

6 PIPE SIZE TYPICAL FOR BRANCH SERVING TWO BILLET HEAT PUMPS.

7 ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

8 IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

9 IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

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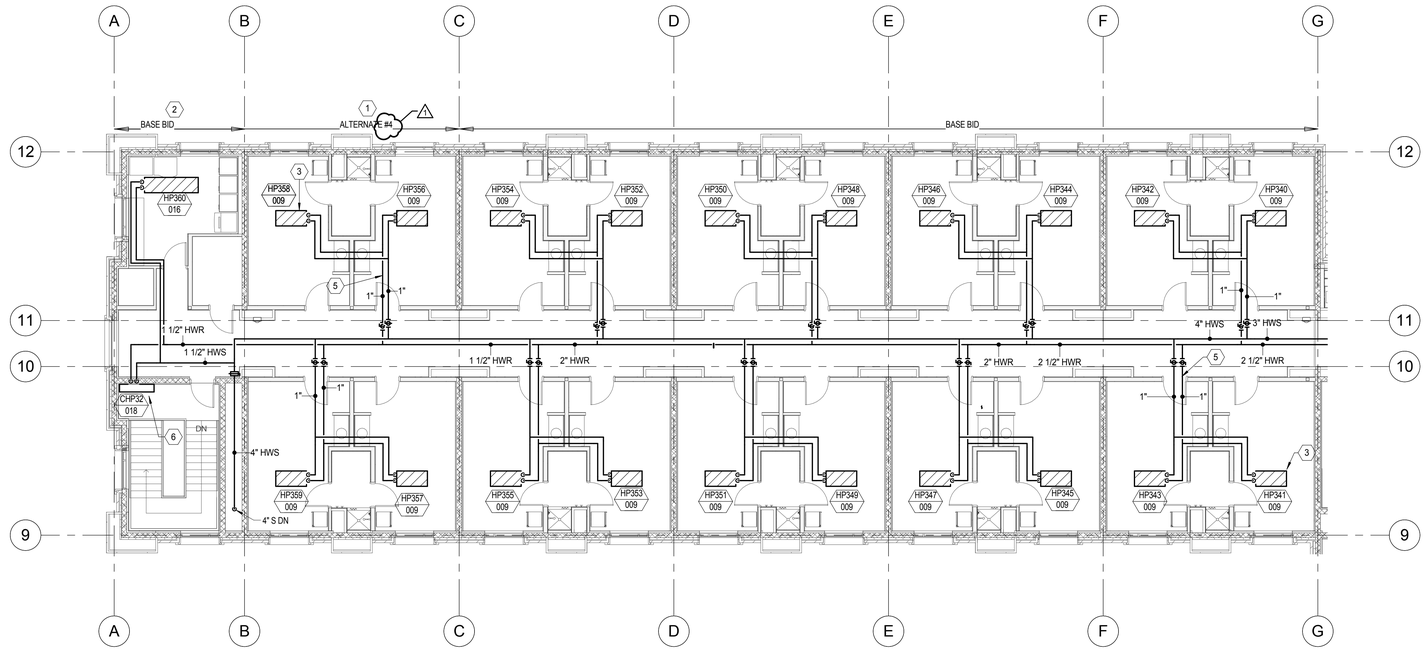
SECOND LEVEL MECH PIPING PLAN - NORTH & SOUTH WINGS

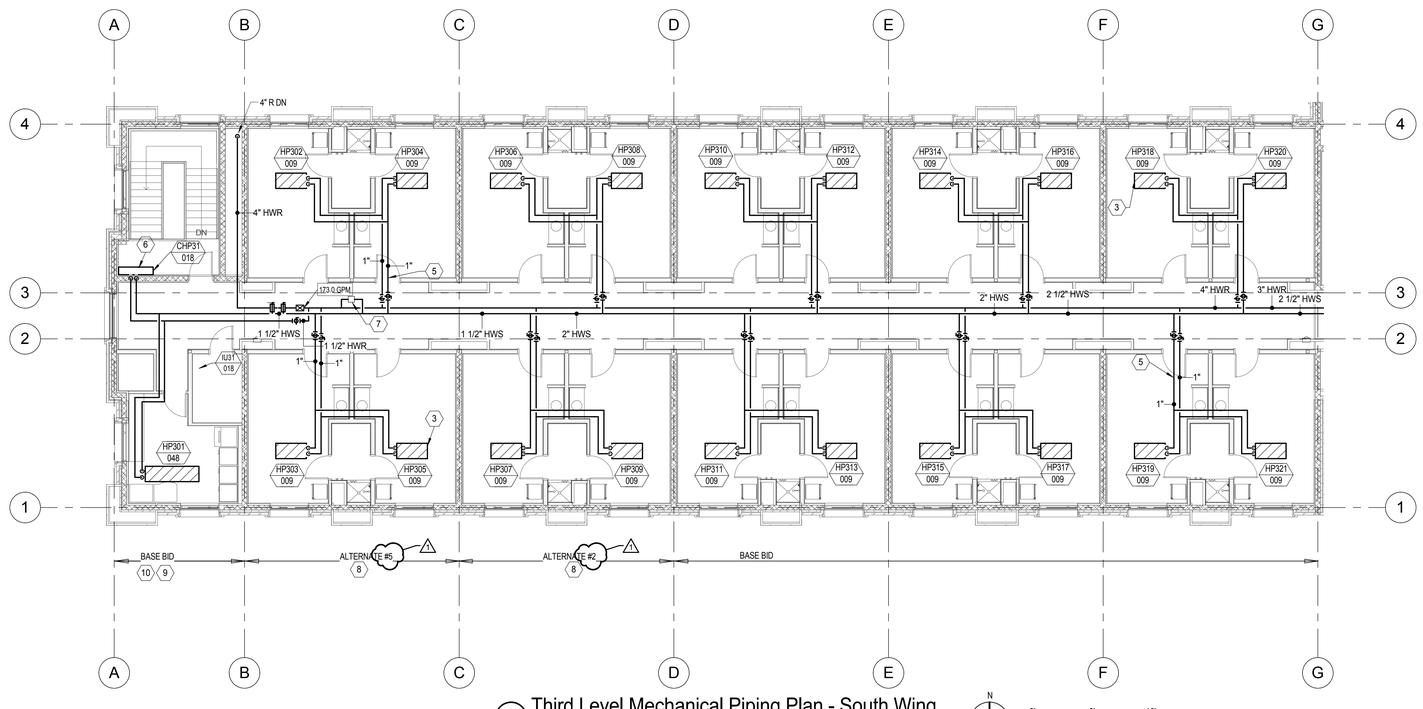
REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY GR	CHECKED BY BW
PROJECT NO. 11007	DRAWING NO. MP102A
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



1 Third Level Mechanical Piping Plan - North Wing
SCALE: 1/8" = 1'-0"



2 Third Level Mechanical Piping Plan - South Wing
SCALE: 1/8" = 1'-0"

KEY PLAN

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

PROFESSIONAL ENGINEER 7705747-2202 BRADLEY J. WELCH 11-12-12 STATE OF UTAH

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VBFA Project Number: 11038

GENERAL NOTES

1. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY ALL ROUTING AND COORDINATE WITH ALL OTHER TRADES.
2. INSTALL MANUAL AIR VENTS AT ALL HYDRONIC SYSTEM HIGH POINTS.
3. MECHANICAL PIPING TO BE INSTALLED ABOVE DUCTWORK AND EQUIPMENT EXCEPT WHERE SHOWN.
4. FIELD VERIFY ALL EQUIPMENT LOCATIONS.

SHEET KEYNOTES

1 ALTERNATE ASSOCIATED WITH THE NORTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

2 IF ALTERNATE #4 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 9 TO 12 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

3 ROUTE CONDENSATE LINE TO BILLET SINK TAILPIECE, TYPICAL FOR ALL BILLET HEAT PUMPS.

4 SCON HEATING WATER RETURN AND SUPPLY PIPING UP TO SCON DRAINS ON ROOF. THIS PIPING IS PART OF ALTERNATE #3.

5 PIPE SIZE TYPICAL FOR BRANCH SERVING TWO BILLET HEAT PUMPS.

6 ROUTE CONDENSATE LINE THROUGH FLOOR TO FLOOR SINK IN LAUNDRY & VENDING ROOM ON LEVEL BELOW.

7 DIFFERENTIAL PRESSURE TRANSMITTER.

8 ALTERNATE ASSOCIATED WITH THE SOUTH WING. COORDINATE WITH ARCHITECTURAL PLANS.

9 IF ALTERNATE #2 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO C IS TO MOVE SUCH THAT GRID C IS ALIGNED WITH GRID D. COORDINATE WITH ARCHITECTURAL PLANS.

10 IF ALTERNATE #5 IS NOT INCLUDED IN THE PROJECT, ALL CONSTRUCTION WITHIN GRIDS 1 TO 4 AND A TO B IS TO MOVE SUCH THAT GRID B IS ALIGNED WITH GRID C. COORDINATE WITH ARCHITECTURAL PLANS.

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RIVERTON, UT 84065

THIRD LEVEL MECH PIPING PLAN - NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	4-5-2013	VBFA	ADD03

DRAWN BY GR	CHECKED BY BW
PROJECT NO. 11007	DRAWING NO. MP103A
DATE 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

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ALTERNATES

THE ALTERNATES LISTED BELOW SHALL APPLY TO ALL ELECTRICAL SHEETS. THE ELECTRICAL SCOPE OF WORK SHALL BE MODIFIED IN THE BID APPROPRIATE TO THE ALTERNATES LISTED BELOW WITH RESPECT TO THE ELECTRICAL WORK AND REQUIRED MODIFICATIONS ASSOCIATED WITH THE COMMISSIONING CONTRACTOR.

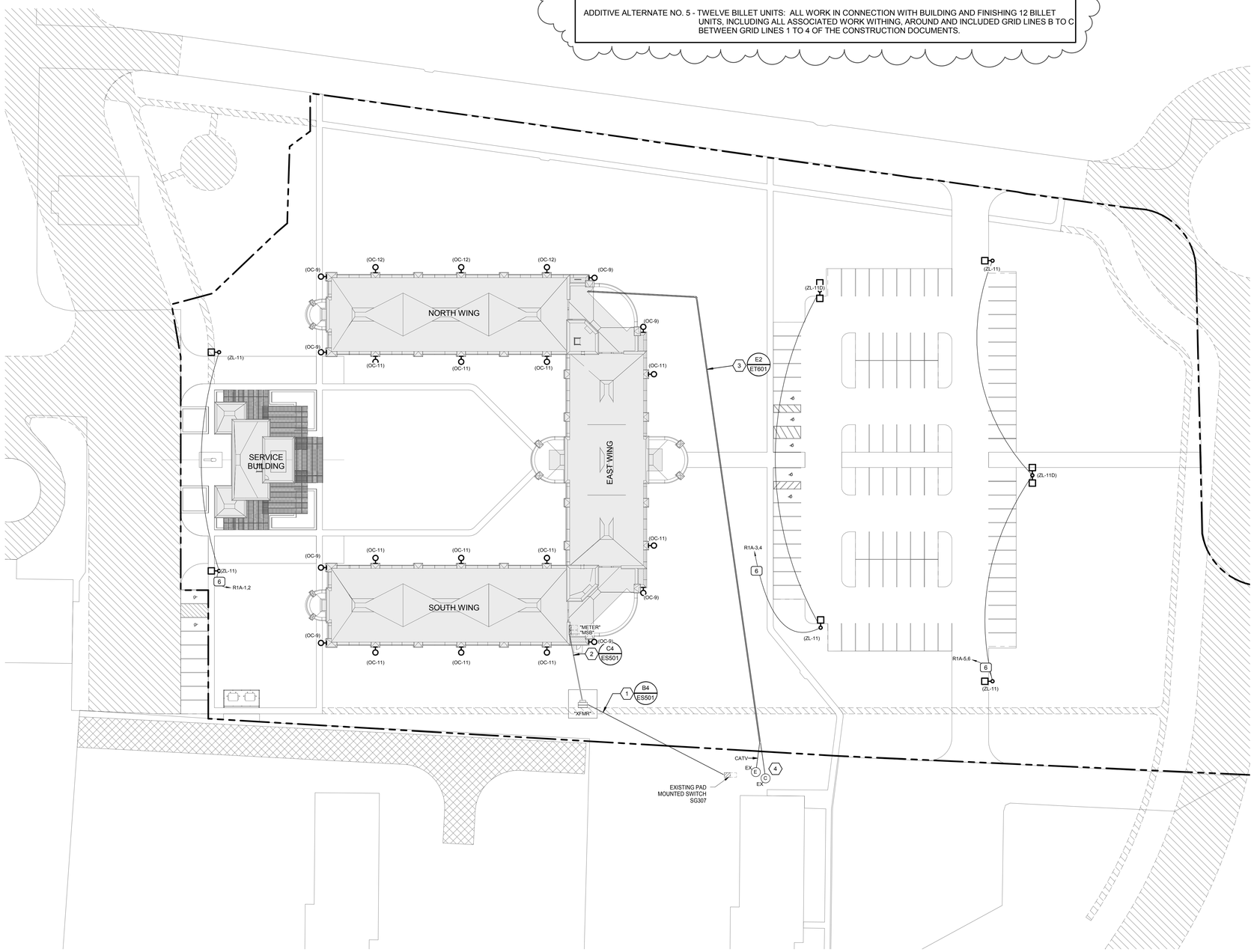
ADDITIVE ALTERNATE NO. 1 - LANDSCAPING AND FLEXIBLE ASPHALT PAVEMENT FOR MAIN PARKING AREA AND ENTRANCES: ALL WORK ASSOCIATED AND IN CONNECTION WITH THE LANDSCAPE SITE TREATMENT, SITE PLANTING, SITE IRRIGATION SYSTEMS NOT INCLUDED WITHIN OTHER PROVISIONS OF THE MAIN BID, AND ALL WORK ASSOCIATED AND IN CONNECTION WITH FURNISHING AND INSTALLING THE TOP FINISH LAYER OF THE FLEXIBLE ASPHALT PAVEMENT FOR THE MAIN PARKING AREA ON THE EAST SIDE OF THE PROJECT INCLUDING ITS ENTRANCES AND MARKING PAINT.

ADDITIVE ALTERNATE NO. 2 - TWELVE BILLET UNITS: ALL WORK IN CONNECTION WITH BUILDING AND FINISHING 12 BILLET UNITS, INCLUDING ALL ASSOCIATED WORK WITHIN, AROUND AND INCLUDED GRID LINES C TO D BETWEEN GRID LINES 1 TO 4 OF THE CONSTRUCTION DOCUMENTS.

ADDITIVE ALTERNATE NO. 3 - SOLAR PANELS: ALL WORK IN CONNECTION WITH FURNISHING AND INSTALLING SOLAR PANELS TO PROVIDE 30 PERCENT OF THE ANNUAL DOMESTIC HOT WATER USE, INCLUDING ALL ASSOCIATED OTHER ELEMENTS AND ACCESSORIES TO COMPLETE THE WORK IN PLACE, READY FOR SERVICE AND IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

ADDITIVE ALTERNATE NO. 4 - TWELVE BILLET UNITS: ALL WORK IN CONNECTION WITH BUILDING AND FINISHING 12 BILLET UNITS, INCLUDING ALL ASSOCIATED WORK WITHIN, AROUND AND INCLUDED GRID LINES B TO C BETWEEN GRID LINES 9 TO 12 OF THE CONSTRUCTION DOCUMENTS.

ADDITIVE ALTERNATE NO. 5 - TWELVE BILLET UNITS: ALL WORK IN CONNECTION WITH BUILDING AND FINISHING 12 BILLET UNITS, INCLUDING ALL ASSOCIATED WORK WITHING, AROUND AND INCLUDED GRID LINES B TO C BETWEEN GRID LINES 1 TO 4 OF THE CONSTRUCTION DOCUMENTS.



E6 SITE ELECTRICAL PLAN
SCALE: 1" = 30'-0"

SEAL & SIGNATURE

SPECTRUM ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 163854 DAVID L. AFFLECK STATE OF UTAH
02-15-2013

SHEET KEYNOTES

1 UNDERGROUND PRIMARY. SEE ONE-LINE DIAGRAM.

2 UNDERGROUND SECONDARY. SEE ONE-LINE DIAGRAM.

3 UNDERGROUND COMMUNICATIONS CONDUITS.

4 CONNECT TO EXISTING COMMUNICATIONS MANHOLE.

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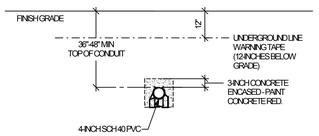
UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84062

ELECTRICAL SITE PLAN

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

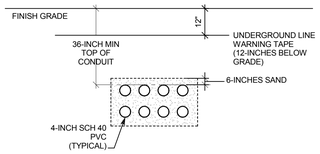
DRAWN BY: WRT
CHECKED BY: DLA
PROJECT NO.: 11007
DRAWING NO.: ES101
DATE: 02/15/2013

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



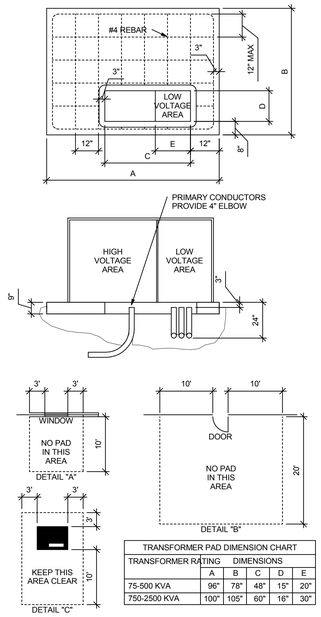
B4 PRIMARY POWER CONDUIT DETAIL

SCALE: NTS



C4 UNDERGROUND SECONDARY CONDUIT DETAIL

SCALE: NTS



TRANSFORMER PAD DIMENSION CHART					
TRANSFORMER RATING	DIMENSIONS				
	A	B	C	D	E
75-500 KVA	96"	78"	48"	15"	20"
750-2500 KVA	100"	105"	60"	16"	30"

C2 TRANSFORMER PAD DETAIL

SCALE: NTS

CONTRACTOR GENERAL NOTES:

1. SITE PREPARATION. ALL SOIL BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.

2. CONCRETE. STEEL REINFORCEMENT SHALL BE #4 BARS, PLACED ACCORDING TO THE DRAWING. THE PAD MUST BE POURED AT LEAST SEVEN FULL DAYS PRIOR TO SETTING THE TRANSFORMER. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. SEE STANDARD 73 036 FOR CONCRETE SPECIFICATIONS.

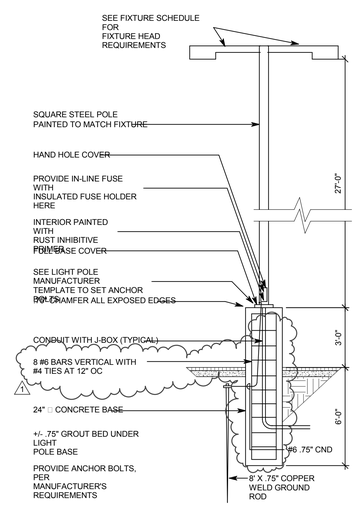
3. PREFABRICATION. THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS.

4. CONDUIT WINDOW LAYOUT. LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST THE RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 20" FROM THE RIGHT SIDE OF THE CONDUIT WINDOW ON THE SMALL PAD OR 30" ON THE LARGE PAD. NO MORE THAN 8 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE (NOT INCLUDING THE METERING CONDUIT). DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE SOIL TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUIT, BUT NOT FOR PLASTIC CONDUIT.

5. CLEARANCES. THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 3 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 20 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW.

6. BARRIERS. IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) PROVIDE PROTECTIVE BOLLARDS.

7. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SAKRETE OR COMPARABLE.



E2 PARKING LOT LIGHT POLE BASE DETAIL (ZL-11)

SCALE: NTS

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

SPECTRUM ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 173854 DAVID L. AFFLECK STATE OF UTAH

02-15-2013

BUILDING OFFICIAL APPROVAL

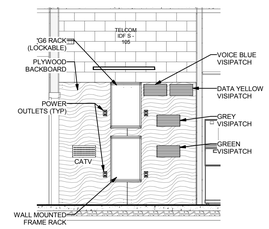
UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84062

ELECTRICAL SITE DETAILS

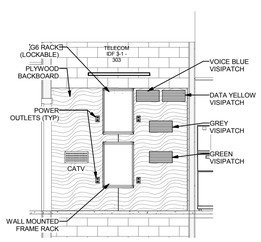
REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY WRT	CHECKED BY DLA
PROJECT NO. 11007	DRAWING NO. ES501
DATE 02/15/2013	

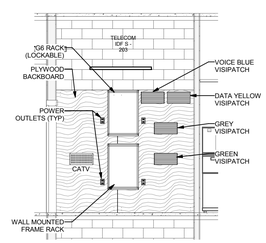
UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



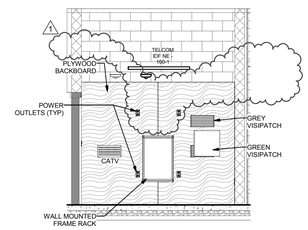
C2 ELEVATION - TELCOM IDF S - 105
SCALE: 1/4" = 1'-0"



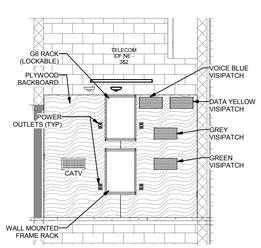
D6 ELEVATION - TELECOM IDF 3-1 - 303
SCALE: 1/4" = 1'-0"



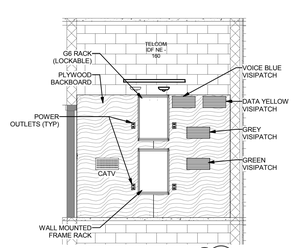
D4 ELEVATION - TELECOM IDF S - 203
SCALE: 1/4" = 1'-0"



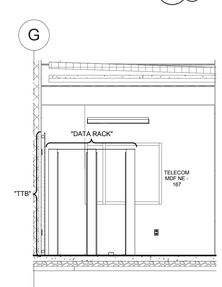
D2 ELEVATION - TELCOM IDF NE - 160 1
SCALE: 1/4" = 1'-0"



E6 ELEVATION - TELECOM IDF NE - 352
SCALE: 1/4" = 1'-0"



E4 ELEVATION - TELCOM IDF NE - 252 1
SCALE: 1/4" = 1'-0"



E2 ELEVATION - TELECOM MDF NE - 167
SCALE: 1/4" = 1'-0"

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SPECTRUM ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 163854
DAVID L. AFFLECK
STATE OF UTAH
02-15-2013

BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84062

ELECTRICAL ELEVATIONS

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY WRT	CHECKED BY DLA
PROJECT NO. 11007	DRAWING NO. EP404
DATE 02/15/2013	

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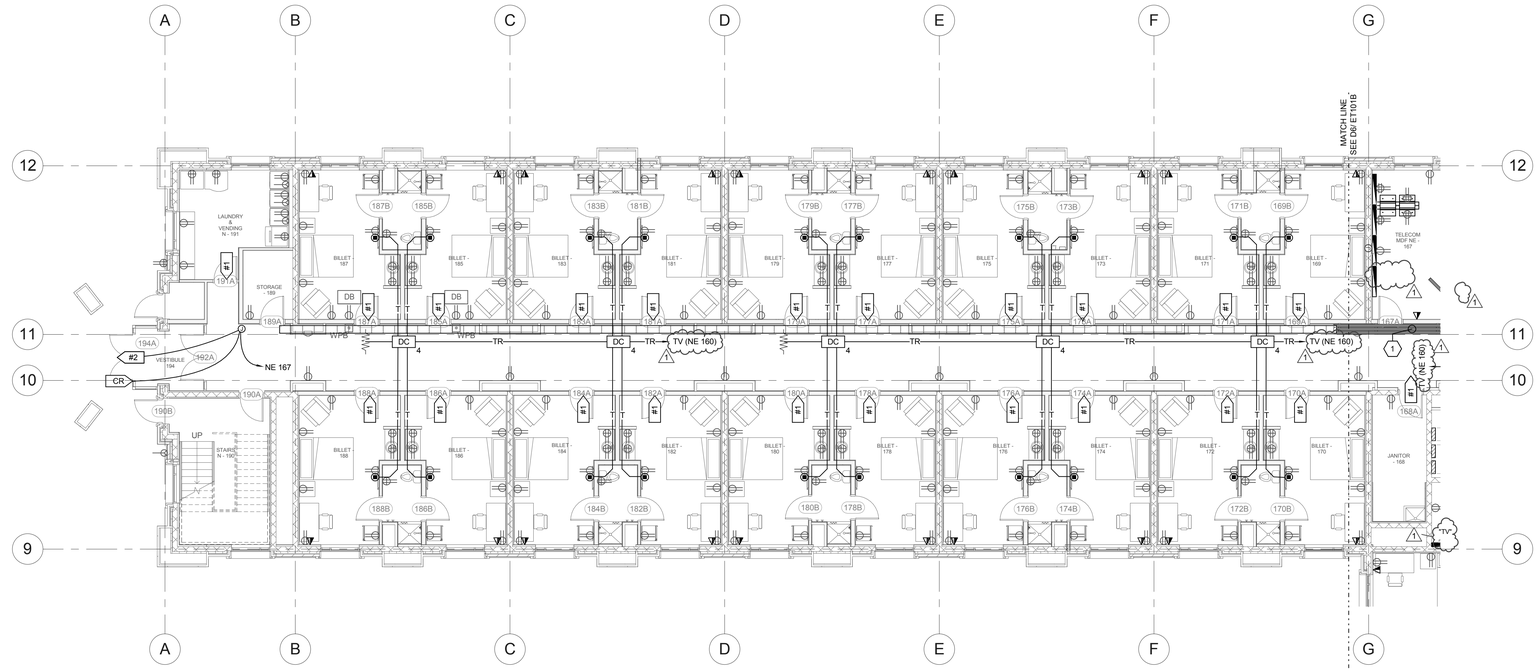
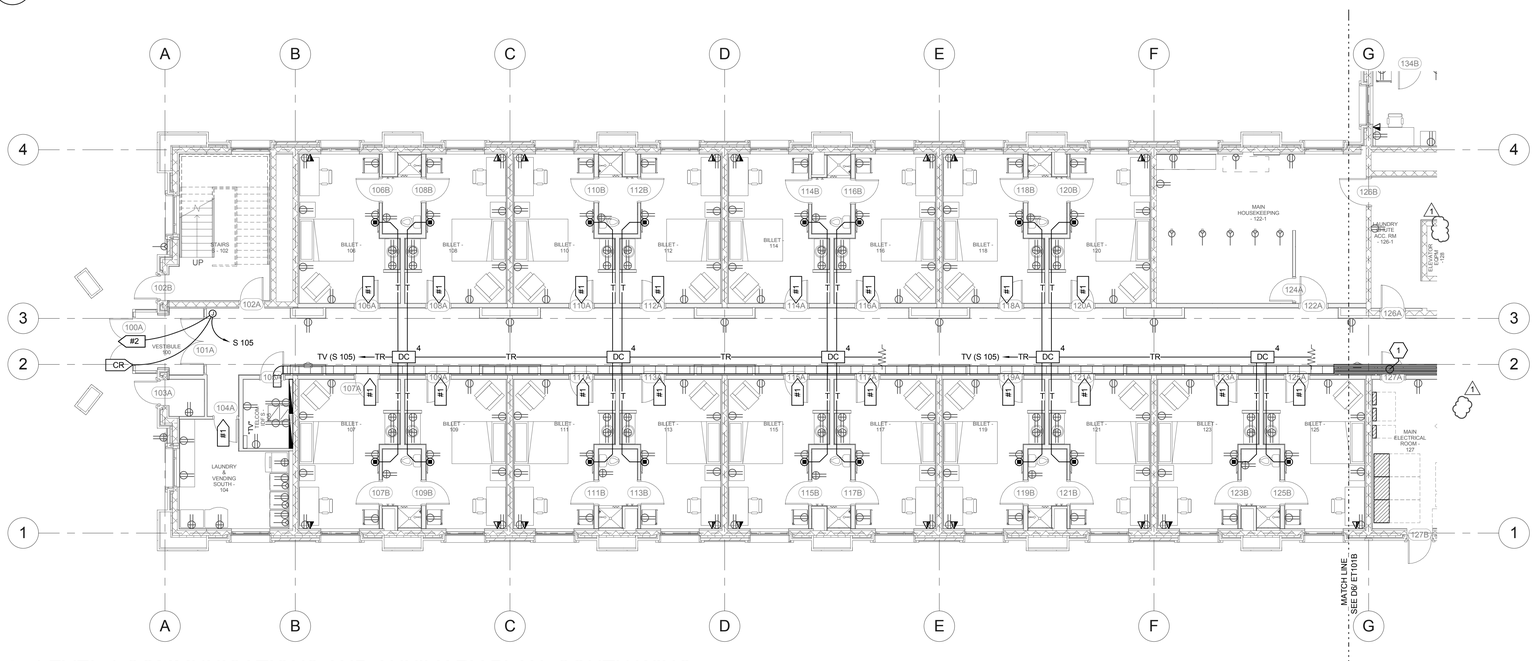


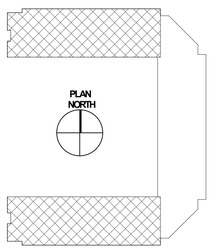
C6 LEVEL 1 COMMUNICATIONS AND AUXILIARY PLAN - NORTH WING

SCALE: 1/8" = 1'-0"



E6 LEVEL 1 COMMUNICATIONS AND AUXILIARY PLAN -SOUTH WING

SCALE: 1/8" = 1'-0"



KEY PLAN

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
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SPECTRUM ENGINEERS

KENNELL PROFESSIONAL ENGINEER No. 163854 DAVID L. AFFLECK STATE OF UTAH 02-15-2013

GENERAL SHEET NOTES

1 COORDINATE EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH HARD LID CEILING ACCESS PANELS INFIELD PRIOR TO ROUGH-IN.

2 ALL VISIPATCH PANELS AND OTHER TERMINATION EQUIPMENT SHALL BE IN COMPLIANCE WITH THE MOST CURRENT G6 STANDARD AND SHALL BE APPROVED BY UTNG PRIOR TO ORDERING EQUIPMENT.

SHEET KEYNOTES

1 3-EACH 4-INCH CONDUITS WITH PULL STRINGS.

2 4-EACH 4-INCH CONDUITS WITH PULL STRINGS.

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1ST LEVEL COMMUNICATIONS PLANS
NORTH & SOUTH WINGS

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY: WRT	CHECKED BY: DLA
PROJECT NO.: 11007	DRAWING NO.: ET101A
DATE: 02/15/2013	

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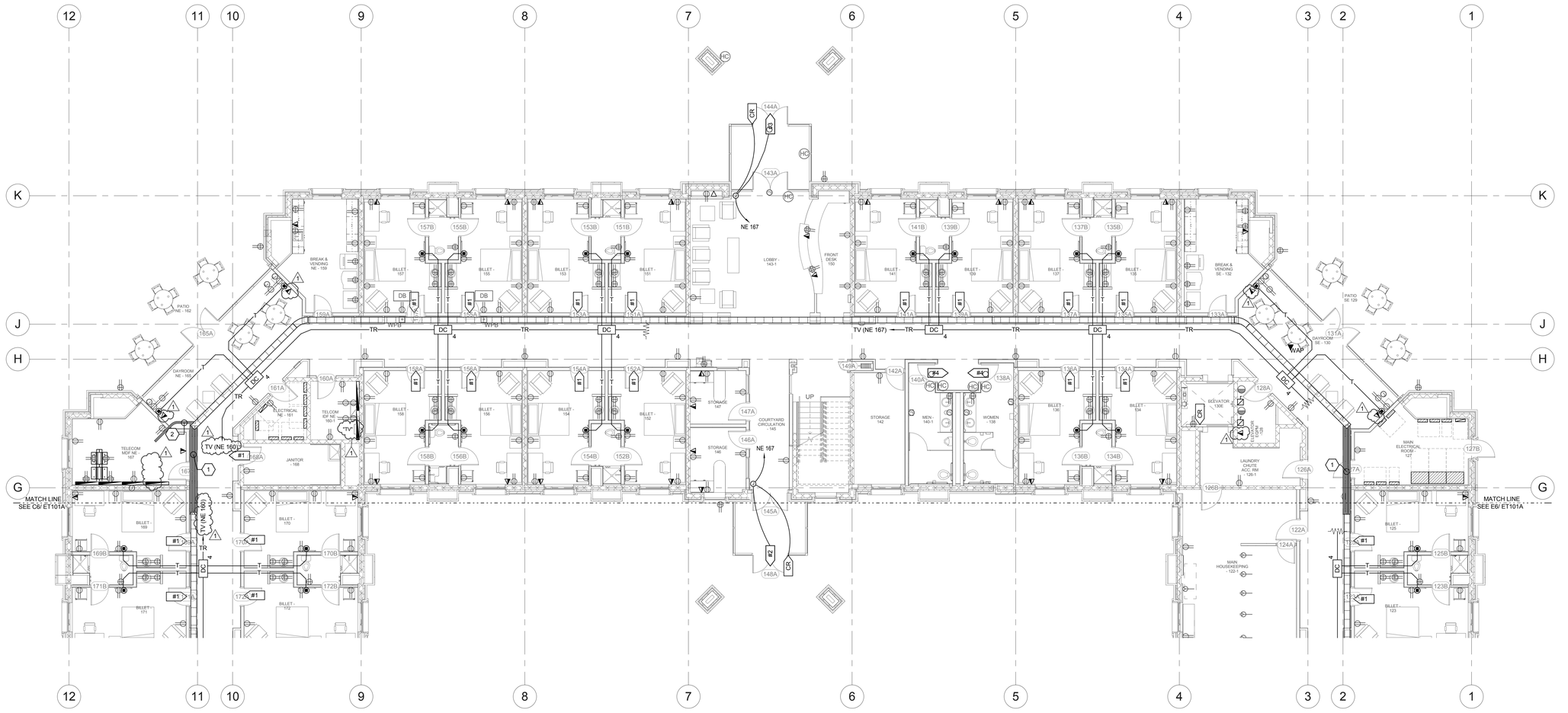
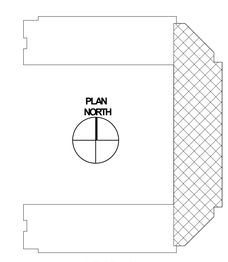
SPECTRUM ENGINEERS

KENELL PROFESSIONAL ENGINEER No. 163854 DAVID L. AFFLECK STATE OF UTAH
02-15-2013



D6 LEVEL 1 COMMUNICATIONS AND AUXILIARY PLAN - EAST WING

SCALE: 1/8" = 1'-0"



KEY PLAN

GENERAL SHEET NOTES

1 COORDINATE EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH HARD LID CEILING ACCESS PANELS INFIELD PRIOR TO ROUGH-IN.

2 ALL VISIPATCH PANELS AND OTHER TERMINATION EQUIPMENT SHALL BE IN COMPLIANCE WITH THE MOST CURRENT G6 STANDARD AND SHALL BE APPROVED BY UTNG PRIOR TO ORDERING EQUIPMENT.

SHEET KEYNOTES

1 3-EACH 4-INCH CONDUITS WITH PULL STRINGS.

2 4-EACH 4-INCH CONDUITS WITH PULL STRINGS.

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1ST LEVEL COMMUNICATIONS AND AUXILIARY PLAN EAST WING

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY WRT	CHECKED BY DLA
PROJECT NO. 11007	DRAWING NO. ET101B
DATE 02/15/2013	

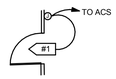
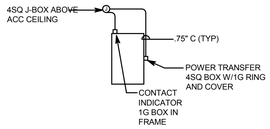
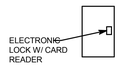
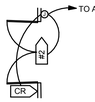
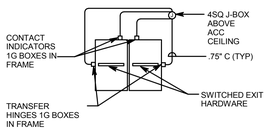
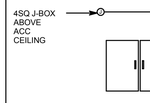
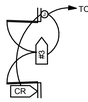
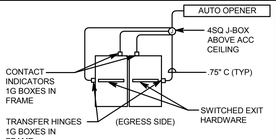
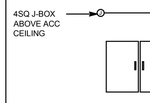
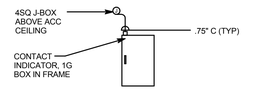
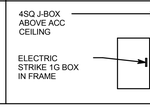
UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS

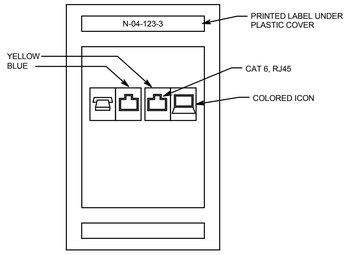
VOICE/DATA EQUIPMENT/CABLE LIST

SYMBOL	ITEM DESCRIPTION	MANUFACTURERS
X C6 VOICE	VOICE CABLING, CATEGORY 6	SEE SPECIFICATIONS (CAT6 BLUE PLENUM RATED) ('X' INDICATES QUANTITY)
X C6 DATA	DATA CABLING, CATEGORY 6	SEE SPECIFICATIONS (CAT6 YELLOW PLENUM RATED) ('X' INDICATES QUANTITY)
LIU	LIGHT INTERFACE UNIT	CORNING CCH03U
PB	PROTECTION BLOCKS	
	BUS BAR, 10", 20", W/ LUGS & MOUNTING ACCESSORIES	CHATSWORTH 10622-010/020
	HORIZONTAL WIRE MANAGERS, BLACK, 2 RU	SEE SPECIFICATIONS
	COPPER CATEGORY 6 PATCH CABLES	SEE SPECIFICATIONS
	CAT 6 J-HOOKS	CADDY CAT32Z34
	CABLE TRAY	SEE SPECIFICATIONS
	UTNG (G6) VOICE/DATA OUTLET	CAT 6 CABLE (VOICE BLUE, DATA YELLOW); SEE SPECIFICATIONS
W	UTNG (G6) NIPRNET VOICE OUTLET; "#" INDICATES QUANTITY OF CABLES	CAT 6 CABLE (BLUE); SEE SPECIFICATIONS

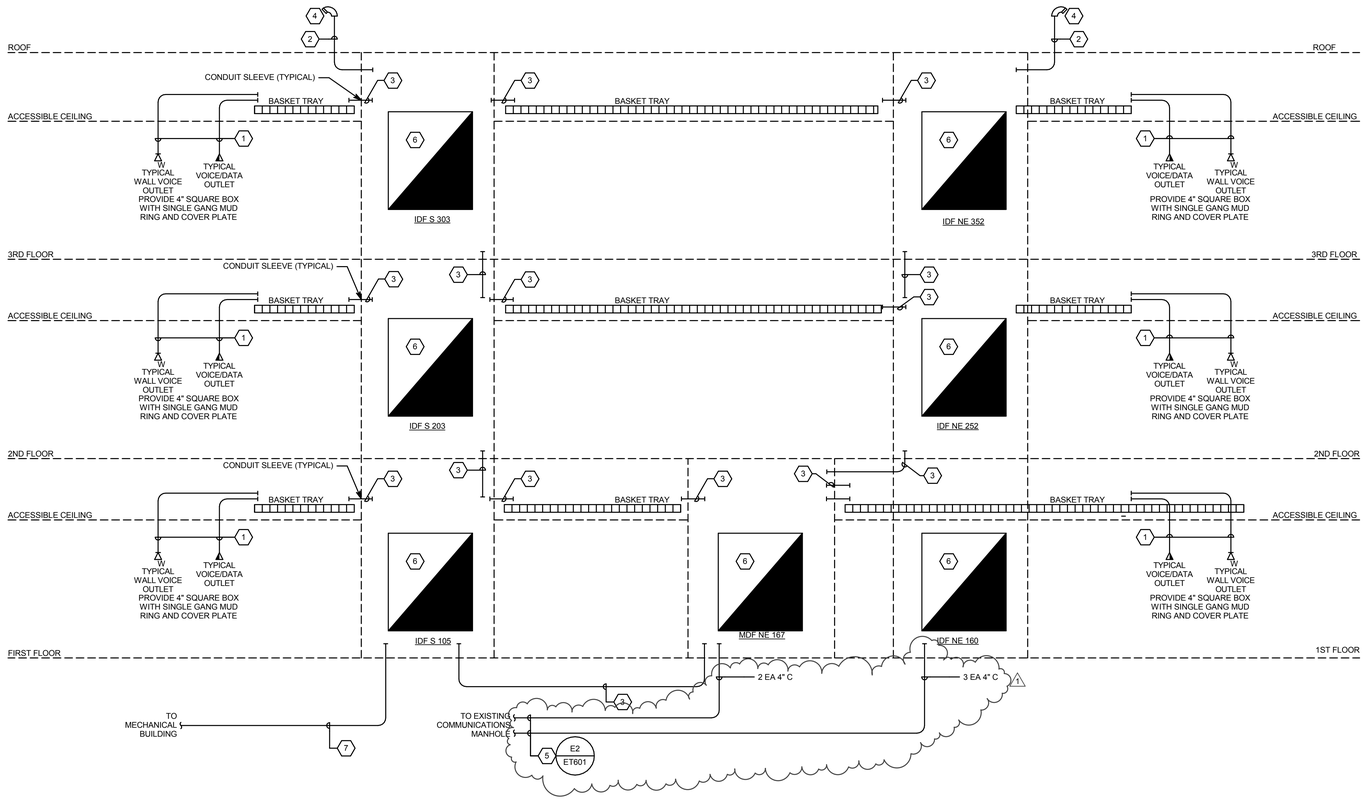
NOTE: ALL RACKS, LADDER, PATCH PANELS, AND ACCESSORIES SHALL BE BLACK IN COLOR.

CARD ACCESS DOOR TYPE SCHEDULE

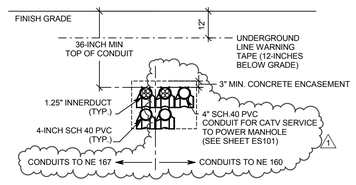
DOOR TYPE #	SYMBOL	DESCRIPTION	PROTECTED SIDE ELEVATION	UNPROTECTED SIDE ELEVATION	LOCK TYPE(S)	DIVISION OF WORK AND COMMENTS:
TYPE 1:	 HARDWARE GROUPS: *****	SINGLE DOOR, 1 CARD READER MOUNTED ON DOOR (FREE EGRESS).			ELECTRONIC LOCK W/ CARD READER	SECURITY CONTRACTOR PROVIDES: • L/PS HARDWARE CONTRACTOR PROVIDES: • EL, CR, EPT, CI LOCK CONTROLLED BY: • CR SPECIAL NOTES: • L/PS-6A @ 24V
TYPE 2:	 HARDWARE GROUPS: *****	DOUBLE DOOR, 1 CARD READER (FREE EGRESS) HARDWARE GROUP 28			ELECTRIFIED EXIT DEVICE W/ REX SWITCH (LATCH RETRACTION)	SECURITY CONTRACTOR PROVIDES: • L/PS, CONTROLLER HARDWARE CONTRACTOR PROVIDES: • PH, CI, REX, EPT LOCK CONTROLLED BY: • CR SPECIAL NOTES: SC SHALL PROVIDE ALARM INPUT ON AC.
TYPE 3:	 HARDWARE GROUPS: *****	DOUBLE DOOR, 1 CARD READER AUTO OPENER, DOORS ARE DOGGED DURING NORMAL HOURS (SEE DOOR OPERATION DESCRIPTION IN HARDWARE SPECIFICATIONS)			PANIC HARDWARE	SECURITY CONTRACTOR PROVIDES: • CR HARDWARE CONTRACTOR PROVIDES: • EPT, PH, L/PS, CI LOCK CONTROLLED BY: • TLC, CR, AO
TYPE 4:	HARDWARE GROUPS: *****	SINGLE DOOR, 1 CARD READER, (FREE EGRESS)			ELECTRIC STRIKE W/ REX SWITCH	SECURITY CONTRACTOR PROVIDES: • L/PS HARDWARE CONTRACTOR PROVIDES: • ES, REX, CI, CR LOCK CONTROLLED BY: • CR



C5 G6 VOICE/DATA PLATE
NTS



E6 TELECOMMUNICATIONS CONDUIT RISER DIAGRAM
SCALE: NTS



E2 COMMUNICATIONS CONDUIT DETAIL
SCALE: NTS

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265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

SPECTRUM ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 173854 DAVID L. AFFLECK STATE OF UTAH
02-15-2013

SHEET KEYNOTES

1. 1-INCH CONDUIT WITH PULL STRING AND GROUND BUSHINGS.
2. 1-EACH, 2-INCH CONDUITS WITH PULL STRING.
3. 4-EACH 4-INCH CONDUIT WITH PULL STRING.
4. WEATHERHEAD ON ROOF.
5. 4-EACH, 4-INCH CONDUITS AND 1-EACH, 2-INCH CONDUIT WITH PULL STRINGS. PROVIDE 4-EACH 1.5-INCH INNERDUCT IN ONE OF THE 4-INCH CONDUITS.
6. 4' X 8' X 3/4" FIRE TREATED PLYWOOD BACKBOARD. PAINT TO MATCH WALL. PROVIDE QUANTITY AS INDICATED ON DRAWINGS.
7. 2-EACH 4-INCH CONDUITS WITH PULL STRINGS.

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CAMP WILLIAMS
BACHELOR ENLISTED
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RIVERTON, UT 84062

COMMUNICATIONS RISER DIAGRAM AND DETAILS

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY: WRT	CHECKED BY: DLA
PROJECT NO.: 11007	DRAWING NO.: ET601
DATE: 02/15/2013	

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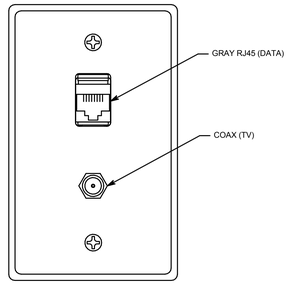
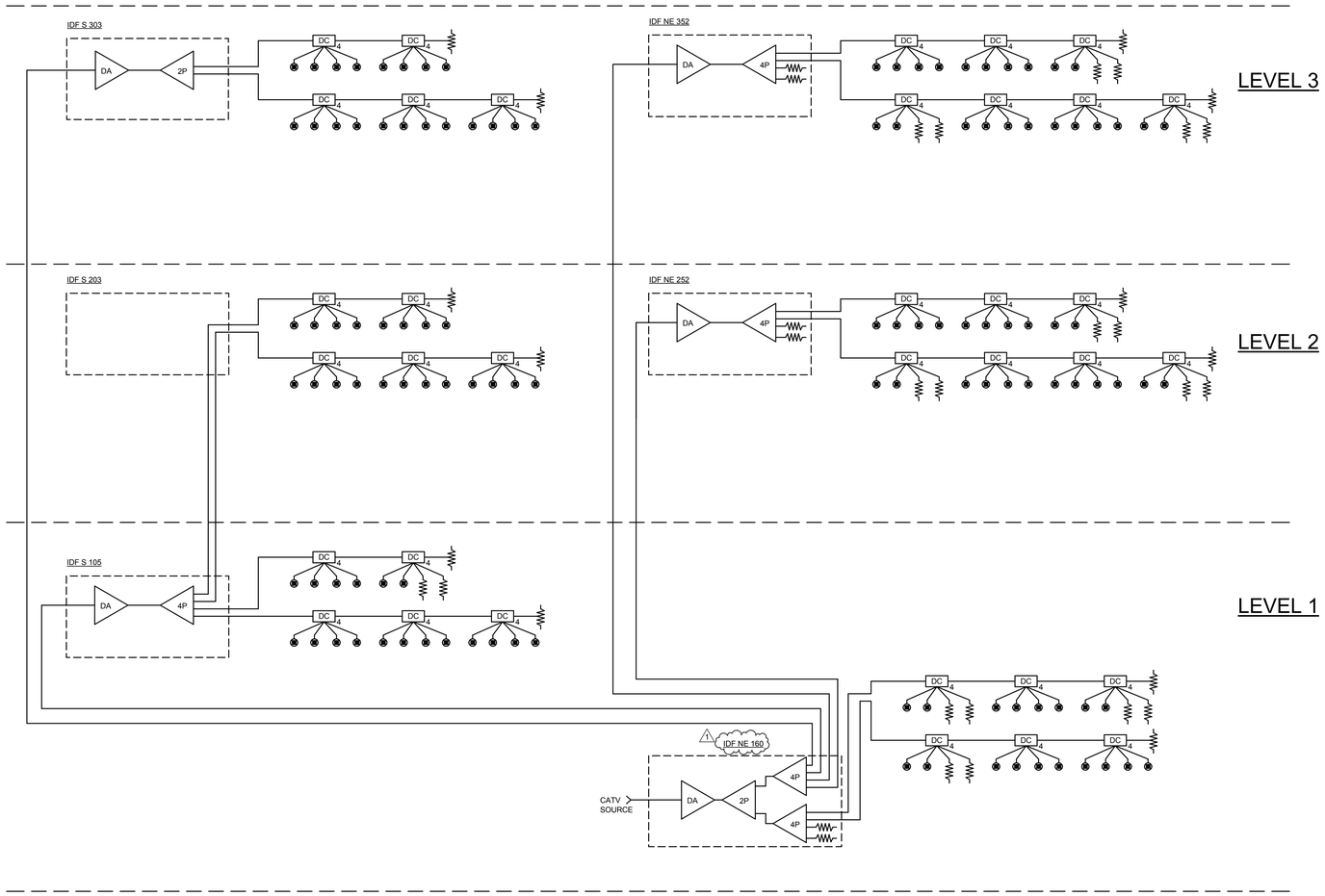


A1 TV OUTLET CONNECTOR
SCALE: NTS

SYMBOL SCHEDULE

TV DISTRIBUTION: REFER TO SECTION 275321 FOR DEVICE SELECTION AND INSTALLATION REQUIREMENTS IF NOT OTHERWISE NOTED. REFER TO RELATED SPECIFICATIONS, AND ARCHITECTURAL ELEVATIONS, FOR ACTUAL LOCATIONS.

SYM	DESCRIPTION	QUANTITY	ACCEPTIBLE TYPES
2P / 4P	MULTI PORT SPLITTER 2 PORT 4 PORT	OFP	BLONDER TONGUE SXRS SERIES
DA	BROADBAND DISTRIBUTION AMPLIFIER	OFP	BLONDER TONGUE BIDA 75A-43
DC (4)	DIRECTIONAL COUPLER (MULTI PORT)	OFP	BLONDER TONGUE SRT, SRT-2A, SRT-4A
	TV OUTLET, FEED THROUGH	OFP	SEE DETAIL
	RF TERMINATOR	OFP	75 OHM TERMINATOR



E4 TV DISTRIBUTION SYSTEM SINGLE LINE DIAGRAM
SCALE: NTS

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
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801.521.8564 WWW.EFTARCH.COM

SEAL & SIGNATURE

SPECTRUM ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 163854 DAVID L. AFFLECK STATE OF UTAH
02-15-2013

BUILDING OFFICIAL APPROVAL

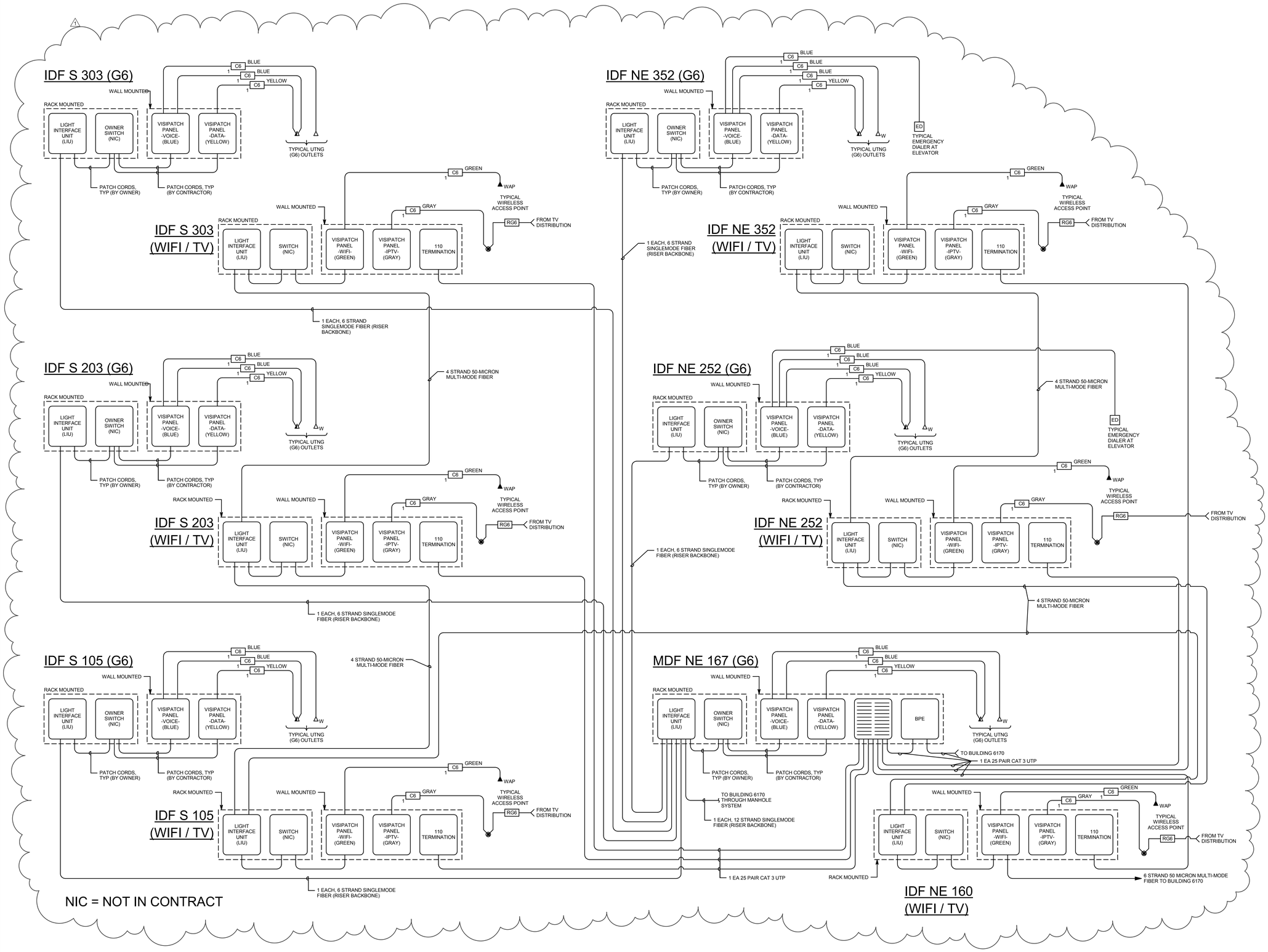
UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED
QUARTERS
RIVERTON, UT 84062

TV DISTRIBUTION DIAGRAM

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY: WRT	CHECKED BY: DLA
PROJECT NO.: 11007	DRAWING NO.: ET602
DATE: 02/15/2013	

UTAH NATIONAL GUARD - CAMP WILLIAMS - BACHELOR ENLISTED QUARTER - CONSTRUCTION DOCUMENTS



E6 TELECOMMUNICATIONS CABLING RISER DIAGRAM

SCALE: NTS

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265 EAST 100 SOUTH SUITE 350
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SPECTRUM ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 163854 DAVID L. AFFLECK STATE OF UTAH 02-15-2013

GENERAL SHEET NOTES

1. COORDINATE EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH HARD LID CEILING ACCESS PANELS INFIELD PRIOR TO ROUGH-IN.
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BUILDING OFFICIAL APPROVAL

UTAH NATIONAL GUARD
CAMP WILLIAMS
BACHELOR ENLISTED QUARTERS
RIVERTON, UT 84062

TELECOMMUNICATIONS DIAGRAMS

REVISION	DATE	BY	DESCRIPTION
1	04/05/13		Addendum #3

DRAWN BY: WRT
CHECKED BY: DLA
PROJECT NO.: 11007
DRAWING NO.: ET603
DATE: 02/15/2013

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